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DMS-100 Family

North American DMS-100

Alarm Clearing and Performance Monitoring Procedures

Volume 3 of 4

LEC0015 and up Standard 14.02 May 2001

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Alarm Clearing and Performance Monitoring Procedures

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1 Peripheral module alarm clearing procedures

Introduction

This chapter provides alarm clearing procedures for the peripheral module (PM). Peripheral module alarms appear under the PM header of the alarm banner in the MAP display. All procedures contain the following sections:

- Alarm display
- Indication
- Meaning
- Result
- Common procedures
- Action

Alarm display

This section indicates how the alarm appears at the MAP terminal.

Indication

This section indicates the location of the alarm indication, the design of the alarm, the affected subsystem, and the alarm severity.

Meaning

This section indicates the cause of the alarm.

Result

This section describes the results of the alarm condition.

Common procedures

This section lists common procedures that you follow during the alarm clearing procedure. A common procedure is a series of steps that repeats in maintenance procedures. The removal and replacement of a card are examples of a common procedure. The common procedures are in the common procedures chapter in this NTP.

1-2 Peripheral module alarm clearing procedures

Do not use common procedures unless the stepaction procedure directs you.

Action

This section provides a summary flowchart of the alarm clearing procedure. A detailed step-action procedure follows the flowchart.

PM 1SPM CLKOOS SPM major

Alarm banner

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1SPM	.	.	.	.	.
.	.	.	.	M	.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

Meaning

The clock out-of-synchronization (CLKOOS) alarm generates when the synchronization circuitry cannot meet the standard performance specifications for its application.

This usually happens under three different circumstances: when the message switch (MS) clock is not synchronized, when a SONET synchronization reference (OC3) of acceptable quality is not available, or when the DMS-SPM loses frequency traceability between the MS clock and the OC3.

The SPM334 log relates to the CLKOOS alarm.

Table MNCKTPAK contains the datafill related to the CLKOOS alarm.

Impact

Service degradations may occur at downstream equipment using DS1 carriers dropped out of the OC3 payload originating in the SPM raising the CLKOOS alarm. Prompt actions should be taken to resolve the CLKOOS condition.

Common procedures

See "Accessing SPM alarms."

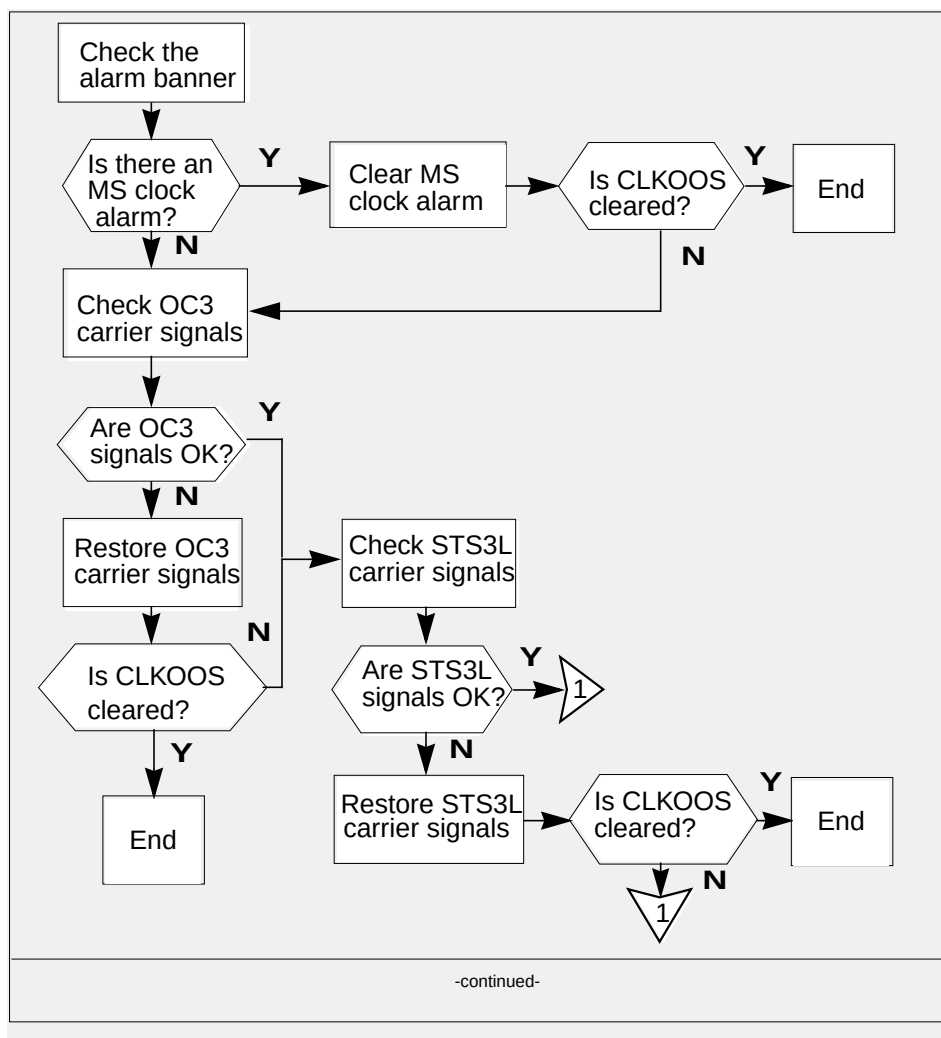
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

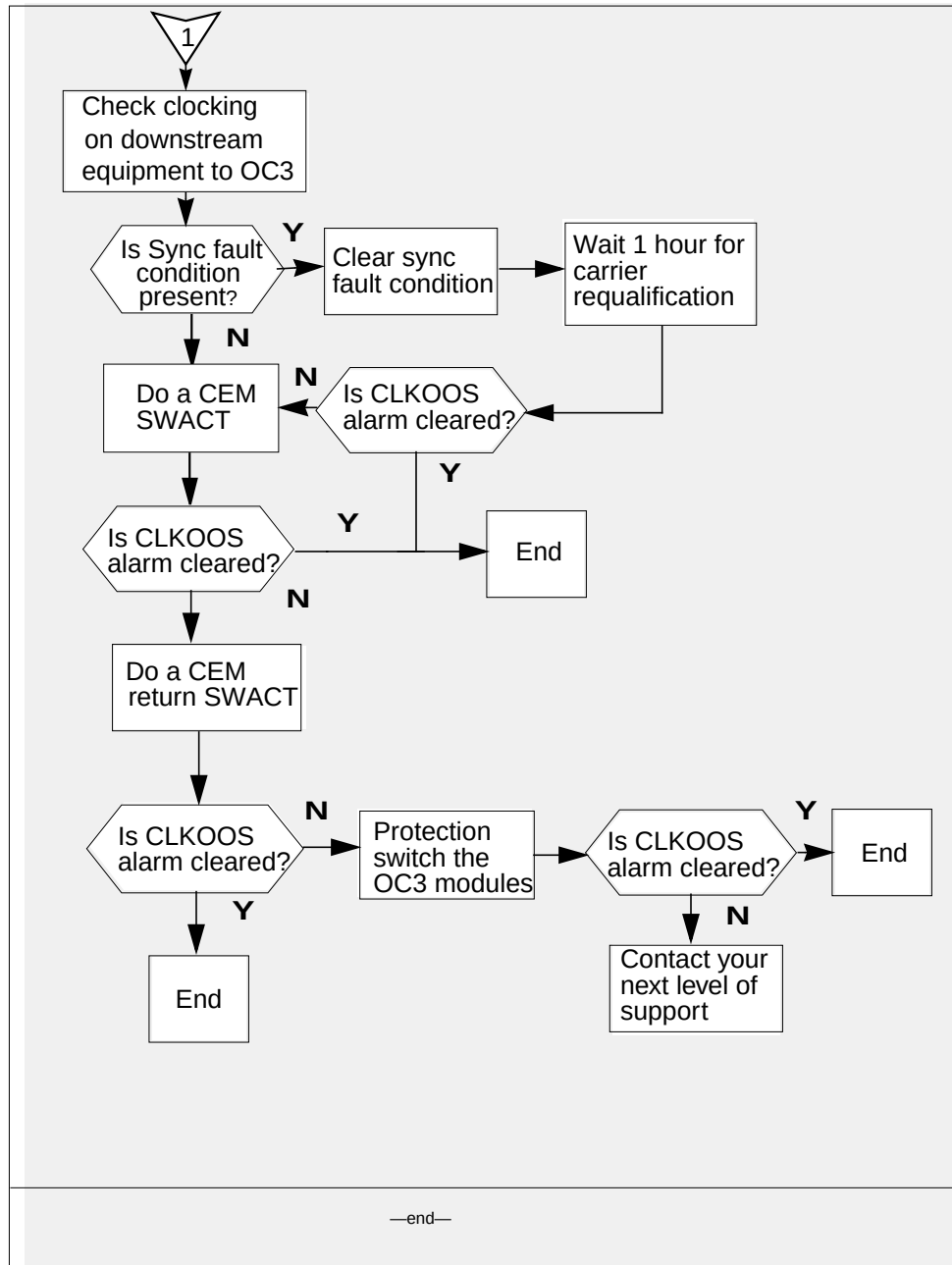
PM 1SPM CLKOOS SPM

major (continued)

Summary of clearing a CLKOOS alarm



Summary of clearing a CLKOOS alarm (continued)

**PM 1SPM CLKOOS SPM
major (continued)**

PM 1SPM CLKOOS SPM major (continued)

Clearing a CLKOOS alarm

At the MAP terminal

- 1 Access the PM level of the map screen by typing
>MAPCI;MTC;PM
and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the inservice-trouble (ISTb) SPMs by typing
>DISP STATE ISTb SPM
and pressing the enter key.
- 3 Post each ISTb SPM by typing
>POST SPM spm_no
and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	1	0

SPM	11	ISTb	Loc:	Site	H0ST	Floor	1	Row	A	FrPos	13
Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-
-----	2	-	----	OC3	0	9	A	----	-----	2	-
DSP	3	3	I OffL	OC3	1	10	I	----	-----	3	-
-----	4	-	----	-----	11	-	----	-----	4	-	----
-----	5	-	----	DSP12	12	A	----	-----	5	-	----
-----	6	-	----	DSP13	13	A	----	-----	6	-	----
CEM	0	7	A ISTb	-----	14	A	----	-----	7	-	----

- 4 Select the ISTb common equipment module (CEM) by typing
>SELECT CEM cem_no

where

cem_no
is the number of the ISTb CEM (0 or 1)

Example of a MAP screen:

PM 1SPM CLKOOS SPM major (continued)

SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLOAD

Clock:

Input Ref: Source: Current Mode:

- 5 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLOAD

Clock:

Input Ref: Source: Current Mode:

ListAlm

ListAlm: SPM 11 CEM 0

SEVERITY	ALARM	ACTION
Critical	None	
Major	CLKOOS	RPT
Minor	None	
No_Alarm	None	

- 6 Record the number of each SPM exhibiting the CLKOOS condition.

- 7 Access the MTC level of the MAP screen by typing

>MAPCI:MTC

and pressing the Enter key.

- 8 Check the alarm banner and determine whether there is an MS clock alarm.

If there is	Do
an MS clock alarm	step 9
not an MS clock alarm	step 10

- 9 Clear the MS clock alarm using the appropriate alarm clearing procedures. When you have completed the procedures, go to step 13.

PM 1SPM CLKOOS SPM

major (continued)

- 10 Access the CARRIER level of the MAP screen by typing
>MAPCI;MTC;TRKS;CARRIER
and pressing the Enter key.
- 11 Post the SPM number for the SPM that is raising the CLKOOS alarm by typing
>POST SPM spm_no
where
spm_no
is the number of the SPM

This takes you directly to the OC3S level for the alarmed SPM.

- 12 Determine whether OC3 carriers are in-service.

If OC3 carriers are	Do
in-service	step 15
not in-service	step 13

- 13 Restore OC3 carrier signals.

Note 1: Contact your next level of support if you are not familiar with the network procedures required to restore OC3 clock signals.

Note 2: The CEM sync circuitry uses the STS3L carrier for synchronization, not the OC3. For proper clearing of the CLKOOS condition, OC3 and STS3L carriers must be in-service.

- 14 List the alarms on the CEM by typing
>LISTALM
and pressing the Enter key.

If the alarm list shows	Do
None	step 33
CLKOOS	step 15

- 15 Access the STS3L carriers by typing
>NEXT
and pressing the Enter key.

- 16 Determine whether STS3L carriers are in-service

If STS3L carriers are	Do
in-service	step 19

PM 1SPM CLKOOS SPM major (continued)

If STS3L carriers are	Do
not in-service	step 17

- 17 Restore the STS3L carrier signals.

Note 1: Contact your next level of support if you are not familiar with the network procedures required to restore OC3 clock signals.

Note 2: The CEM sync circuitry uses the STS3L carrier for synchronization, not the OC3. For proper clearing of the CLKOOS condition, OC3 and STS3L carriers must be in-service.

- 18 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 33
CLKOOS	step 19

- 19 Determine if sync fault condition is present on the downstream equipment driving the OC3 into the SPM.

If sync fault condition is	Do
present	step 20
not present	step 22

- 20 Clear sync fault condition on downstream equipment driving the OC3 into the SPM.

Note: Once a sync fault condition is corrected, the SPM clears the CLKOOS condition, but there will be a delay of between 20 and 40 minutes while the SPM evaluates the stability of the OC3 carrier frequency.

- 21 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 33
CLKOOS	step 22

- 22 Force the CEMs to switch activity by typing

>PROT ; FORCE ; QUIT

and pressing the enter key.

PM 1SPM CLKOOS SPM

major (continued)

- 23 Select the active (A) CEM by typing
>SELECT CEM cem_no
and pressing the Enter key.
where
 cem_no
 is the number of the active CEM (0 or 1)

- 24 List the alarms on the CEM by typing
>LISTALM
and pressing the enter key.

If the alarm list shows	Do
None	step 25
CLKOOS	step 28

- 25 Force the CEMs to switch activity by typing
>PROT;FORCE;QUIT
and pressing the Enter key.
- 26 Select the active (A) CEM by typing
>SELECT CEM cem_no
and pressing the Enter key.
where
 cem_no
 is the number of the active CEM (0 or 1)
- 27 List the alarms on the CEM by typing
>LISTALM
and pressing the Enter key.
Example of a MAP screen:

PM 1SPM CLKOOS SPM major (continued)

SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLoad

Clock:

Input Ref: Source: Current Mode:

ListAlm

ListAlm: SPM 11 CEM 0

SEVERITY	ALARM	ACTION
Critical	None	
Major	CLKOOS	RPT
Minor	None	
No_Alarm	None	

If the alarm list shows	Do
None	step 33
CLKOOS	step 28

- 28** Select the active OC3 module by typing

>SELECT OC3 oc3_no

and pressing the Enter key.

where

oc3_no

is the number of the active OC3

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	2	4	0	6	2
SPM	0	2	2	0	1	1
OC3	0	0	2	0	0	0

SPM 5 OC3 0 Act

Loc : Row D FrPos 6 ShPos 6 ShId 0 Slot 9 Prot Grp : 1
Default Load: SPMLoad Prot Role : Working

POST:
OC3:

- 29** List the protection status of the OC3 modules by typing

>PROT

and pressing the Enter key.

PM 1SPM CLKOOS SPM major (end)

Example of a MAP screen

```

SPM   5   ISTb
Prot Grp: OC3_GRP 1      Mode: Non-revertive   Schema: one_plus_one
Sh0 U R A Stat   Sh0 U R A Stat   Sh1 U R A Stat   Sh1 U R A Stat
1 -- - - - -    8 -- - - - -    1 -- - - - -    8 -- - - - -
2 -- - - - -    9 -- - - - -    2 -- - - - -    9 -- - - - -
3 -- - - - -   10 -- - - - -    3 -- - - - -   10 -- - - - -
4 -- - - - -   11 -- - - - -    4 -- - - - -   11 -- - - - -
5 -- - - - -   12 -- - - - -    5 -- - - - -   12 -- - - - -
6 -- - - - -   13 -- - - - -    6 -- - - - -   13 -- - - - -
7 -- - - - -   14 -- - - - -    7 -- - - - -   14 -- - - - -

```

- 30** Determine the active OC3. Force the OC3s to switch activity by typing
>FORCE act_oc3_no inact_oc3_no
 and pressing the Enter key.

where

act_oc3_no
 is the number of an active (A) OC3 (0 or 1)

inact_oc3_no
 is the number of an (I) inactive OC3

- 31** Return to the SPM level and list the alarms on the CEM by typing
>LISTALM
 and pressing the Enter key.

If the alarm list shows	Do
None	step 33
CLKOOS	step 32

- 32** For further assistance, contact the personnel responsible for the next level of support.
- 33** You have completed this procedure. Return to the CI level of the MAP screen by typing
>QUIT ALL
 and pressing the Enter key.

PM 1SPM COTLOW SPM minor

Alarm display

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	PM	.	.	.	.	.
.	.	.	.	1SPM	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor () alarm indicator appears beneath it.

Meaning

The low water mark threshold was exceeded for CCS7-continuity-test (COT) transceiver resources. The demand for COT resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the COTLOW alarm. Table MNNODE contains the datafill related to the COTLOW alarm.

Impact

If the threshold setting is low enough to ensure that there are adequate resources in the COT pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available COT resources cannot meet the demand, call processing or grades of service, or both, are degraded.

Common procedures

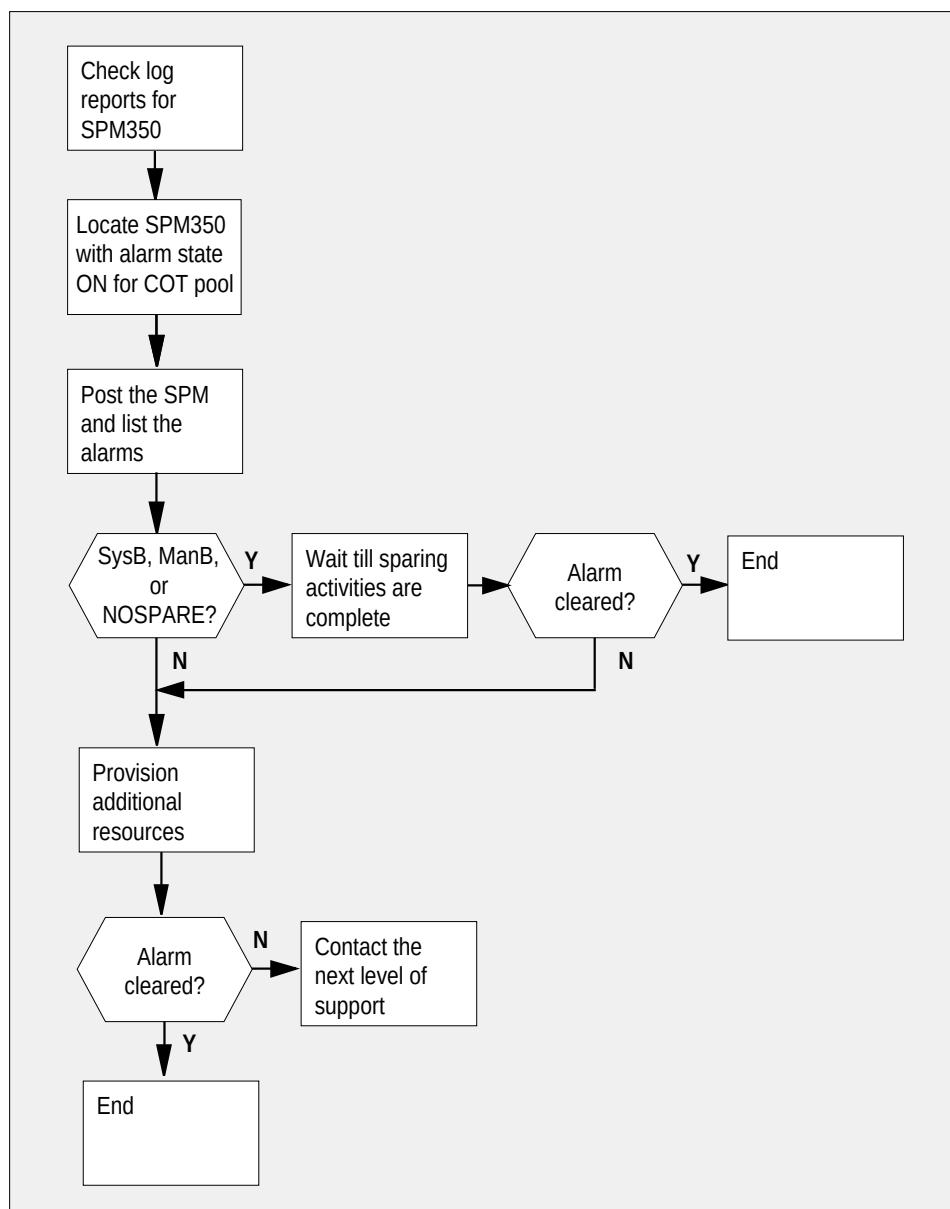
See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM COTLOW SPM minor (continued)

Summary of clearing a COTLOW alarm



Clearing a COTLOW alarm

At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

**PM 1SPM COTLOW SPM
minor (continued)**

>LOGUTIL

and pressing the Enter key.

- 2** Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

Example of a MAP screen:

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL        = COT
SPM_NUM     = 20
NUM_FREE    = 39
NUM-INUSE   = 61
```

Note: OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3** Locate an SPM350 log with ALARM_STATE = ON and POOL = COT . Record the number of the SPM.
- 4** Post the SPM by typing

>MAPCI;MTC;PM;POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63) shown in the log report

Example of a MAP screen:

PM 1SPM COTLOW SPM minor (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM        7      2      2      2      9      16
SPM       0      1      1      0      0      1

SPM  20  InSv  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8 I InSv  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9 A InSv  ----- 2 - ----  ----- 9 - ----
DSP 3  3 I OffL  OC3 1 10 I InSv  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A InSv  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A InSv  ----- 6 - ----  ----- 13 - ----
CEM 0  7 A InSv  ----- 14 A InSv  ----- 7 - ----  ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```

ListAlm
ListAlm: SPM 11

SEVERITY      ALARM      ACTION
-----
Critical      None
Major         None
Minor         COTLOW      RPT
No_Alarm      None

```

- 6 Do the following substeps to determine if sparing activities are underway.
- a Check the alarm list for a NOSPARE alarm.

If the alarm list indicates	Do
Major NOSPARE	step 6b
Major None	step 6c

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE PM alarm clearing procedure.

PM 1SPM COTLOW SPM minor (end)

- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
 - d Wait until the state of the DSPs indicates InSv.
- 7 When the DSPs are returned to service, determine if the alarm has cleared.

If the alarm list indicates	Do
Minor COTLOW	step 8
Minor None	step 11

- 8 Provision additional digital signal processor (DSP) resource modules (RM). Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

Note: Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list indicates	Do
Minor COTLOW	step 10
Minor None	step 11

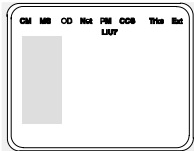
- 10 For further assistance, contact the personnel responsible for the next level of support.
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM DTMFLOW SPM
minor

Alarm display

	CM	MS	IOD	Net	PM 1SPM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor () alarm indicator appears beneath it.

Meaning

The low water mark threshold was exceeded for dual-tone multifrequency (DTMF) resources. The demand for DTMF resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the DTMFLOW alarm. Table MNNODE contains the datafill related to the DTMFLOW alarm.

Impact

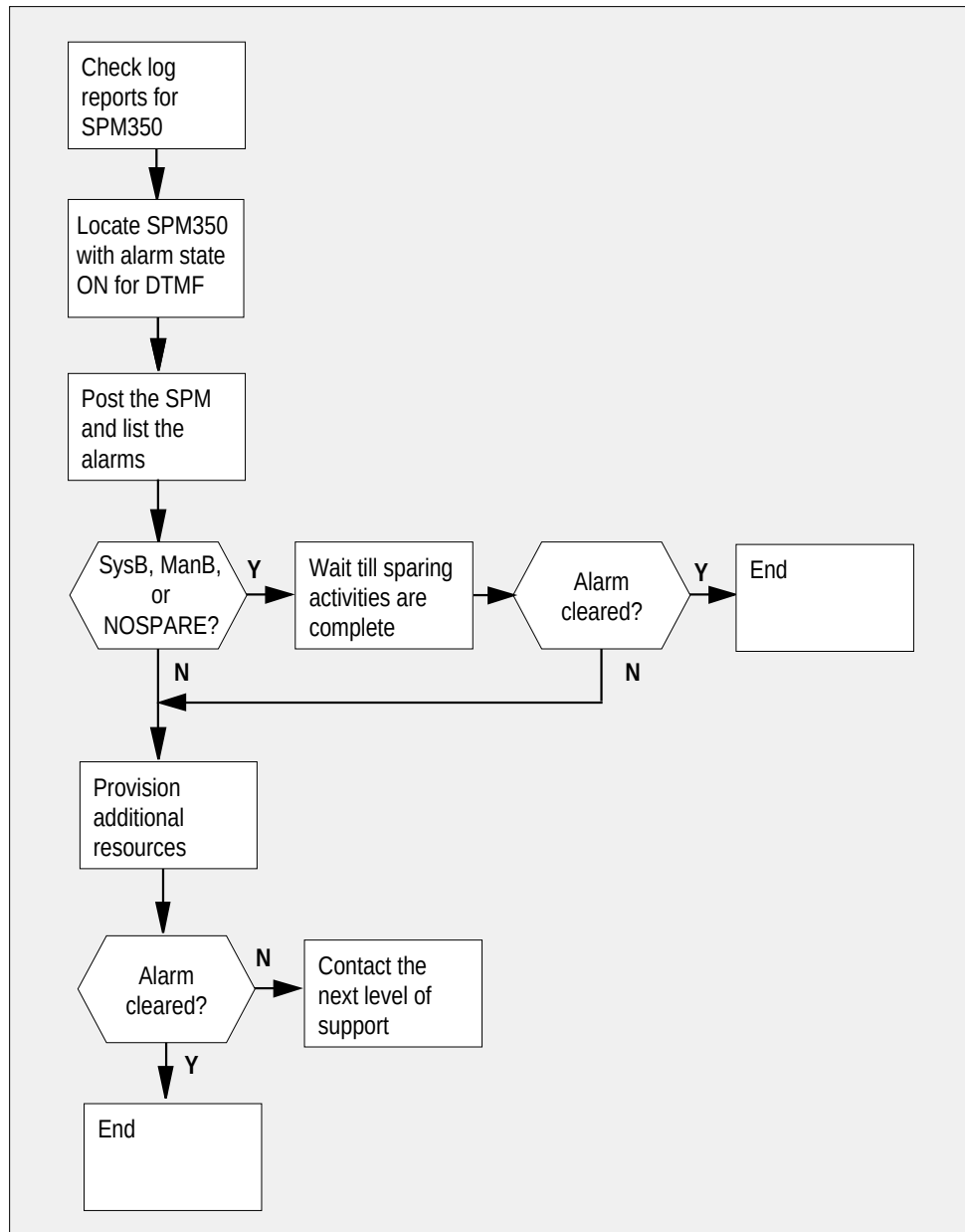
If the threshold setting is low enough to ensure that there are adequate resources in the DTMF pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available DTMF resources cannot meet the demand, call processing or grades of service, or both, are degraded.

Common procedures

See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM 1SPM DTMFLOW SPM
minor (continued)****Summary of clearing a DTMFLOW alarm**

PM 1SPM DTMFLOW SPM minor (continued)

Clearing a DTMFLOW alarm

At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

>LOGUTIL

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

Example of a MAP screen:

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL        = DTMF
SPM_NUM     = 20
NUM_FREE    = 39
NUM-INUSE   = 61
```

Note: OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM_STATE = ON and POOL = DTMF . Record the number of the SPM.
- 4 Post the SPM by typing

>MAPCI;MTC;PM;POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63) shown in the log report

Example of a MAP screen:

PM 1SPM DTMFLOW SPM minor (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM        7      2      2      2      9      16
SPM       0      1      1      0      0      1

SPM  20  InSv  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8 I InSv  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9 A InSv  ----- 2 - ----  ----- 9 - ----
DSP 3  3 I OffL  OC3 1 10 I InSv  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A InSv  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A InSv  ----- 6 - ----  ----- 13 - ----
CEM 0  7 A InSv  ----- 14 A InSv  ----- 7 - ----  ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```

ListAlm
ListAlm: SPM 11

SEVERITY      ALARM      ACTION
-----
Critical      None
Major         None
Minor         ECANLOW      RPT
No_Alarm      None

```

- 6 Do the following substeps to Determine whether sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.

If the alarm list indicates	Do
Major NOSPARE	step 6 b
Major None	step 6 c

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE PM alarm clearing procedure.

PM 1SPM DTMFLOW SPM

minor (end)

- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
 - d Wait until the state of the DSPs indicates InSv.
- 7 When the DSPs are returned to service, Determine whether the alarm has cleared.

If the alarm list indicates	Do
Minor DTMFLOW	step 8
Minor None	step 11

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

Note: Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list indicates	Do
Minor DTMFLOW	step 10
Minor None	step 11

- 10 For further assistance, contact the personnel responsible for the next level of support.
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM ECANLOW SPM minor

Alarm display

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	PM	.	.	.	.	.
.	.	.	.	1SPM	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor () alarm indicator appears beneath it.

Meaning

The low water mark threshold was exceeded for echo canceller (ECAN) resources. The demand for ECAN resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the ECANLOW alarm. Table MNNODE contains the datafill related to the ECANLOW alarm.

Impact

If the threshold setting is low enough to ensure that there are adequate resources in the ECAN pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available ECAN resources cannot meet the demand, call processing or grades of service, or both, are degraded.

Common procedures

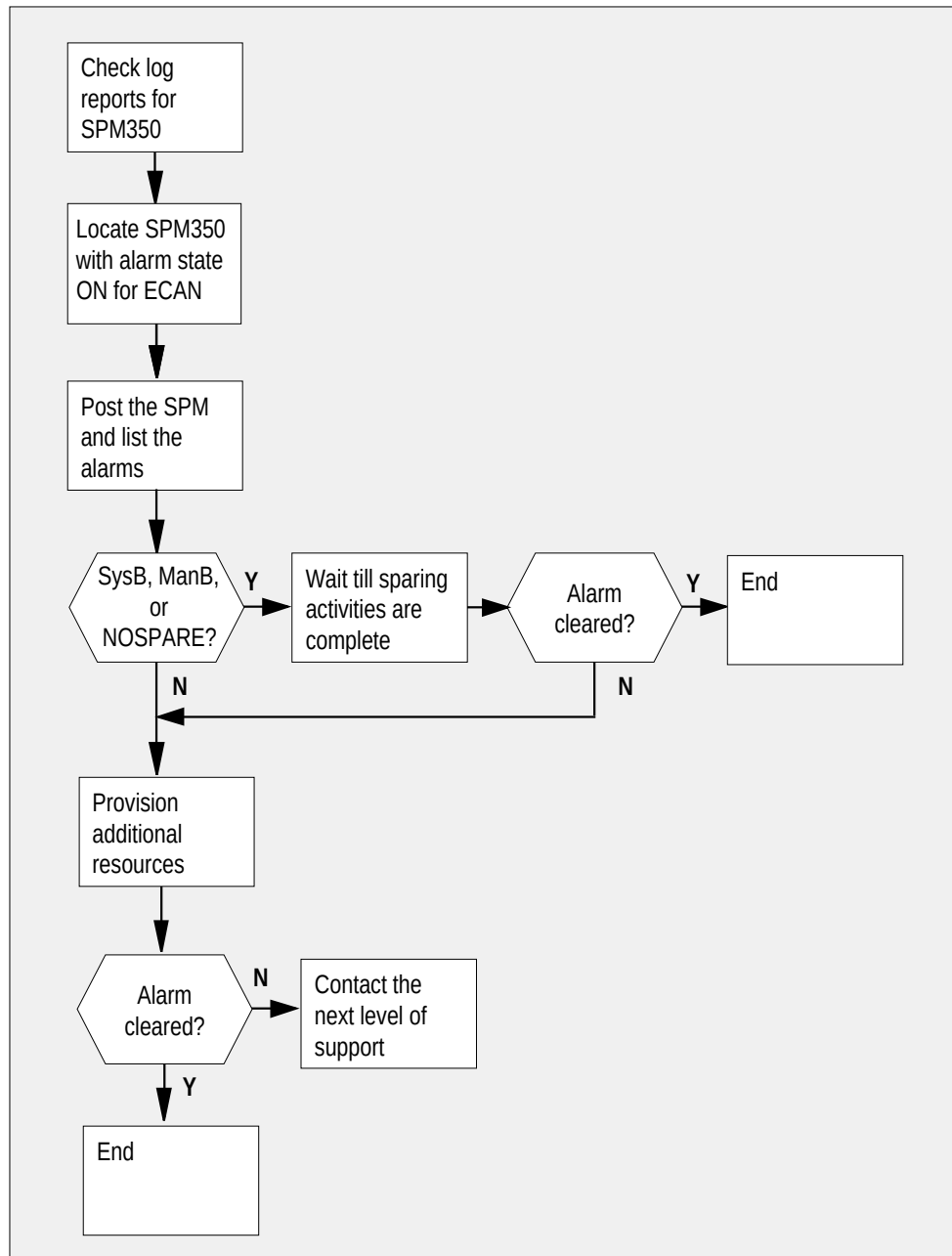
See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM ECANLOW SPM minor (continued)

Summary of clearing an ECANLOW alarm



PM 1SPM ECANLOW SPM minor (continued)

Clearing a ECANLOW alarm

At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

>LOGUTIL

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

Example of a MAP screen:

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL        = ECAN
SPM_NUM     = 20
NUM_FREE    = 39
NUM-INUSE   = 61
```

Note: OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM_STATE = ON and POOL = ECAN. Record the number of the SPM.
- 4 Post the SPM by typing

>MAPCI;MTC;TRK;POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63) shown in the log report

Example of a MAP screen:

PM 1SPM ECANLOW SPM minor (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM        7      2      2      2      9      16
SPM       0      1      1      0      0      1

SPM  20  InSv  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8 I InSv  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9 A InSv  ----- 2 - ----  ----- 9 - ----
DSP 3   3 I OffL  OC3 1 10 I InSv  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A InSv  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A InSv  ----- 6 - ----  ----- 13 - ----
CEM 0   7 A InSv  ----- 14 A InSv  ----- 7 - ----  ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```

ListAlm
ListAlm: SPM 11

SEVERITY      ALARM      ACTION
-----
Critical      None
Major         None
Minor         ECANLOW      RPT
No_Alarm      None

```

- 6 Do the following substeps to determine whether sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.

If the alarm list indicates	Do
Major NOSPARE	step 6 b
Major None	step 6 c

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.
- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing

PM 1SPM ECANLOW SPM minor (end)

activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.

d Wait until the state of the DSPs indicates InSv.

- 7** When the DSPs are returned to service, Determine whether the alarm has cleared.

If the alarm list indicates	Do
Minor ECANLOW	step 8
Minor None	step 11

- 8** Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

Note: Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9** List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list indicates	Do
Minor ECANLOW	step 10
Minor None	step 11

- 10** For further assistance, contact the personnel responsible for the next level of support.

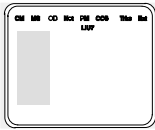
- 11** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM HLDOVR SPM
major

Alarm banner

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1SPM	.	.	.	.	.
	.	.	.	.	M	.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

Meaning

The common equipment module (CEM) clocks have lost network synchronization. The clocks are running in holdover (HLDOVR) mode.

The DMS-Spectrum Peripheral Module (SPM) log SPM501 relates to the HLDOVR alarm. Table MNCKTPAK contains the datafill related to the HLDOVR alarm.

Impact

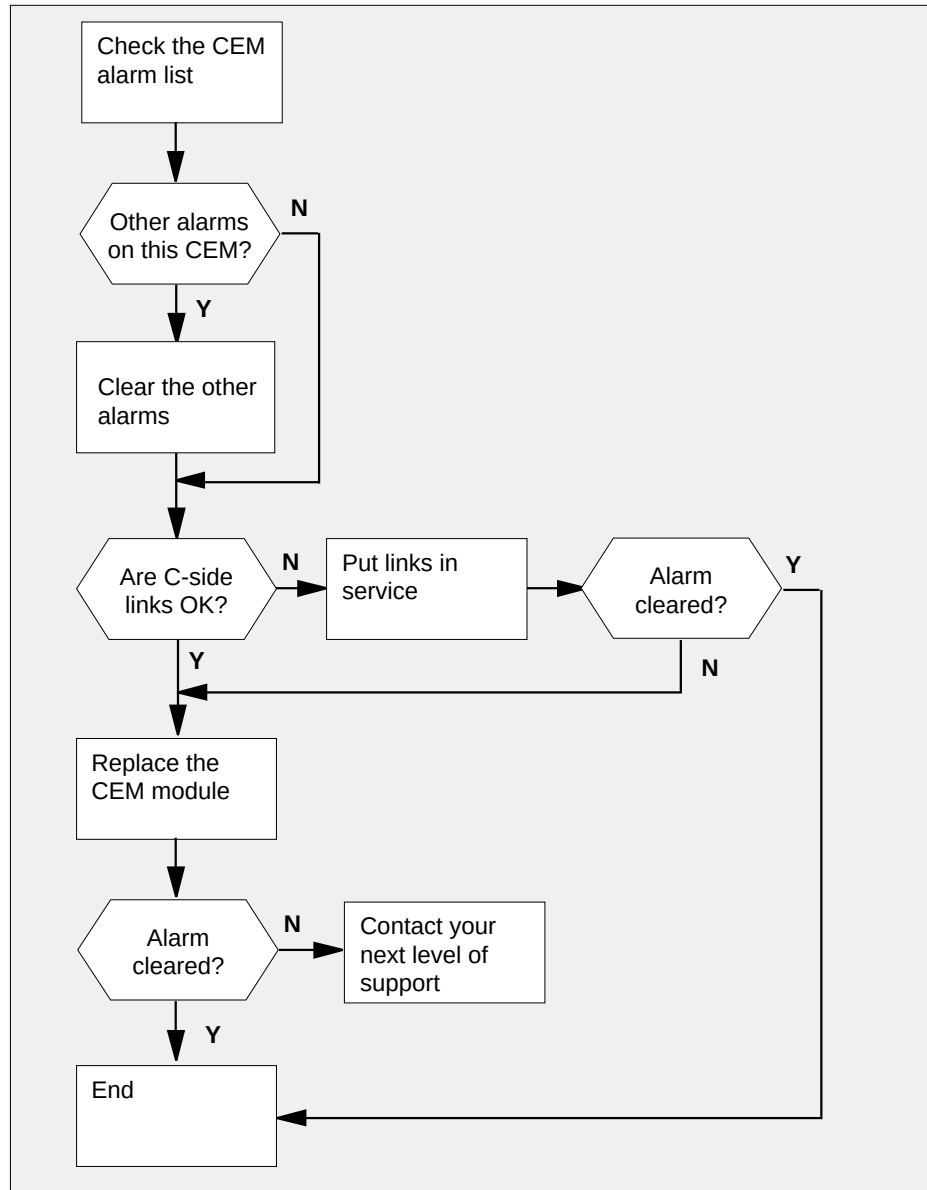
SPM is not synchronized with the network. Carrier traffic is not supported. Other clock-related alarms may also occur.

Common procedures

See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM 1SPM HLDOVR SPM
major (continued)****Summary of clearing an HLDOVR alarm**

PM 1SPM HLDOVR SPM major (continued)

Clearing a HLDOVR alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI ; MTC ; PM
and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the system-busy SPMs by typing
>DISP STATE SYSB SPM
and pressing the Enter key.
- 3 Record the number of the SPMs.
- 4 Post each system-busy SPM by typing

>POST SPM spm_no
and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	0	0

SPM	11	SysB	Loc:	Site	HOST	Floor	1	Row	A	FrPos	13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat	
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3	0	9	A	----	-----	2	-	----	-----	9	-	----
DSP	3	3	I OffL	OC3	1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----	
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----	
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----	
CEM	0	7	A SysB	-----	14	A	----	-----	7	-	----	-----	14	-	----	

- 5 Select the system-busy CEM by typing
>SELECT CEM cem_no
and pressing the Enter key.
where

PM 1SPM HLDOVR SPM major (continued)

cem_no

is the number of the CEM (0 or 1)

Example of a MAP screen:

```
SPM   11 CEM   0  Act   SysB
```

```
Loc  : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
```

```
Default Load: SPMLoad
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

- 6** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```
SPM   11 CEM   0  Act   SysB
```

```
Loc  : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
```

```
Default Load: SPMLoad
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

```
ListAlm
```

```
ListAlm: SPM 11  CEM 0
```

SEVERITY	ALARM	ACTION
Critical	None	
Major	HOLDOVR	RPT
Minor	None	
No_Alarm	None	

- 7** Determine whether there are any other CEM alarms.

If there are	Do
no other CEM alarms	step 9
other CEM alarms	step 8

- 8** Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step.

- 9** List the status of the C-side links by typing

>TRNSL

PM 1SPM HLDOVR SPM major (continued)

and pressing the Enter key.

Example of a MAP screen:

```
SPM    11 CEM    0 Act    SysB

Loc : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
Default Load: SPMLoad
Clock:
Input Ref:                Source:                Current Mode:
Trnsl
Link 1: ENET 0  0  30  0; Status: OK
Link 2: ENET 1  0  30  1; Status: NA
Link 3: ENET 0  0  30  2; Status: OK
Link 4: ENET 1  0  30  3; Status: OK
```

- 10** Determine whether the C-side links are in service.

If the C-side links appear as	Do
OK	step 13
NA or UR	step 11

- 11** Return the C-side links to service. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore C-side links to service.

- 12** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 16
HOLDOVR	step 13

- 13** Replace the CEM module. For detailed instructions, see "SPM NTLX63AA CEM card" in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 14** List the alarms on the CEM by typing

>LISTALM

**PM 1SPM HLDOVR SPM
major (end)**

and pressing the Enter key.

If the alarm list shows	Do
None	step 16
HOLDOVR	step 15

15 For further assistance, contact the personnel responsible for the next level of support.

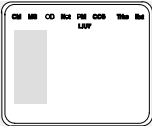
16 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM HLDOVR24 SPM
major

Alarm banner

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1SPM	.	.	.	.	.
	.	.	.	.	M	.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

Meaning

The common equipment module (CEM) clocks have not been synchronized with the network for 24 hours or more. The clocks are running in holdover (HLDOVR) mode.

The DMS-Spectrum Peripheral Module (SPM) log SPM501 relates to the HLDOVR24 alarm, Table MNCKTPAK contains the datafill related to the HLDOVR24 alarm.

Impact

SPM has not been synchronized with the network for 24 hours or more, carrier traffic has not been supported, other clock-related alarms may have been generated.

Common procedures

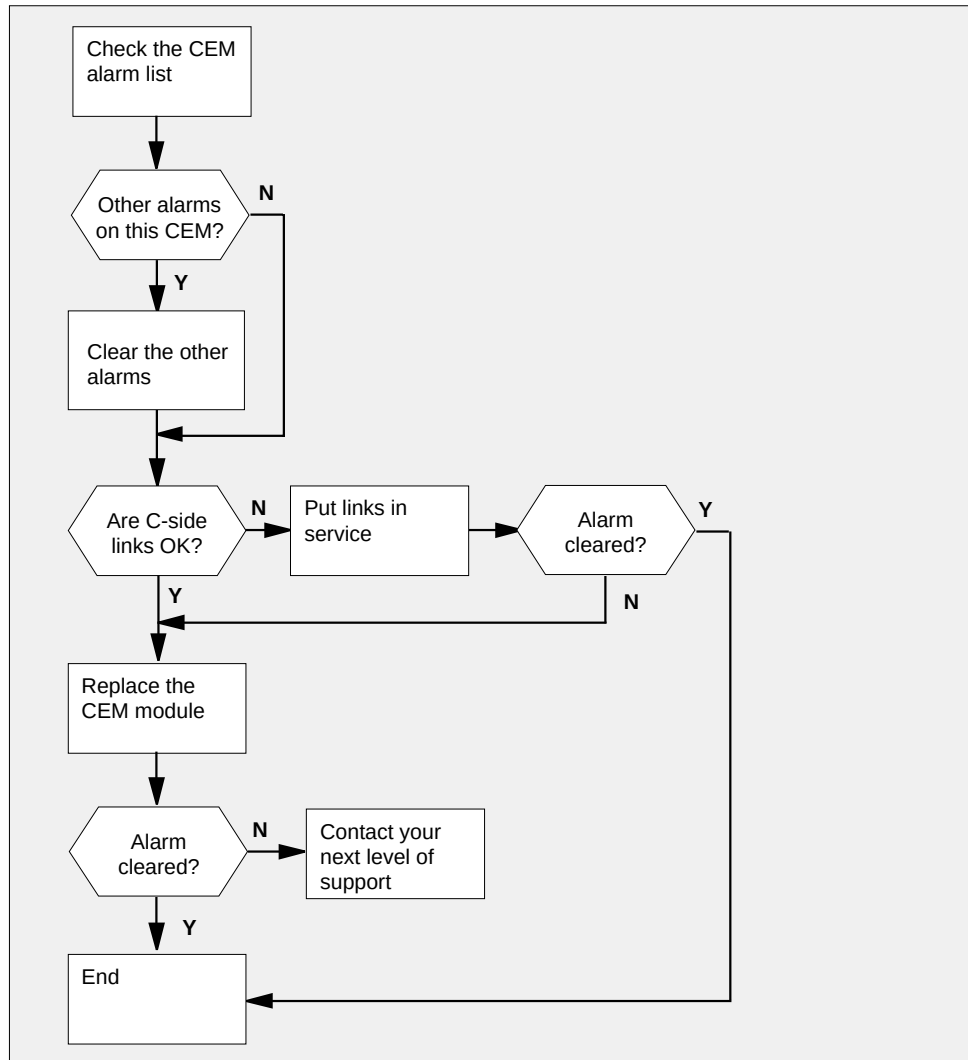
See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM HLDOVR24 SPM major (continued)

Summary of clearing an HLDOVR24 alarm



Clearing an HLDOVR24 alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI ; MTC ; PM
 and pressing the Enter key.
Example of a MAP screen:

PM 1SPM HLDOVR24 SPM major (continued)

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the system-busy SPMs by typing

>DISP STATE SYSB SPM

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each system-busy SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	0	0

SPM	11	SysB	Loc:	Site	H0ST	Floor	1	Row	A	FrPos	13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM 1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3 0	9	A	----	-----	2	-	----	-----	9	-	----
DSP 3	3	I	OffL	OC3 1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----
CEM 0	7	A	SysB	-----	14	A	----	-----	7	-	----	-----	14	-	----

- 5 Select the system-busy CEM by typing

>SELECT CEM cem_no

and pressing the Enter key.

where

cem_no

is the number of the CEM (0 or 1)

Example of a MAP screen:

PM 1SPM HLD0VR24 SPM major (continued)

SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLoad

Clock:

Input Ref: Source: Current Mode:

- 6 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLoad

Clock:

Input Ref: Source: Current Mode:

ListAlm

ListAlm: SPM 11 CEM 0

SEVERITY	ALARM	ACTION
Critical	None	
Major	HOLD0VR24	RPT
Minor	None	
No_Alarm	None	

- 7 Determine whether there are any other CEM alarms.

If there are	Do
no other CEM alarms	step 9
other CEM alarms	step 8

- 8 Clear the other CEM alarms using the appropriate SPM alarm clearing procedures, When you have completed the procedures, return to this step

- 9 List the status of the C-side links by typing

>TRNSL

and pressing the Enter key.

PM 1SPM HLDVR24 SPM major (continued)

Example of a MAP screen:

```
SPM   11 CEM   0  Act   SysB

Loc  : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
Default Load: SPMLoad
Clock:
Input Ref:           Source:           Current Mode:
TrnsL
Link 1: ENET 0  0  30  0; Status: OK
Link 2: ENET 1  0  30  1; Status: NA
Link 3: ENET 0  0  30  2; Status: OK
Link 4: ENET 1  0  30  3; Status: OK
```

- 10** Determine whether the C-side links are in service.

If the C-side links appear as	Do
OK	step 13
NA or UR	step 11

- 11** Return the C-side links to service. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore C-side links to service.

- 12** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 16
HOLDOVR24	step 13

- 13** Replace the CEM module. For detailed instructions, see “SPM NTLX63AA CEM card” in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 14** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 16

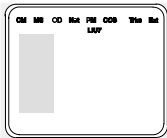
PM 1SPM HLD OVR24 SPM
major (end)

If the alarm list shows	Do
HLD OVR24	step 15

- 15** For further assistance, contact the personnel responsible for the next level of support.
- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing
>QUIT ALL
and pressing the Enter key.

PM 1SPM ISTB SPM
minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1SPM	.	.	.	.	.
	.	.	.	.		.	.	.	.	.

Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A minor () alarm indicator appears beneath it.

Meaning

The DMS-Spectrum Peripheral Module (SPM) is in an in-service trouble (ISTB) state. The SPM is in service, but it is experiencing non-service-affecting faults.

The following logs relate to the ISTB alarm:

- SPM300
- SPM331
- SPM500
- SPM630
- ENET308

Tables MNCKTPAK and MNNODE contain datafill related to the ISTB alarm.

Impact

The following devices generate an ISTB alarm:

- Node
- CEM
- OC3
- DSP
- VSP
- ATM
- DLC

**PM 1SPM ISTB SPM
minor (continued)**

Note: This alarm does not affect service.

	ATTENTION The asynchronous transfer mode (ATM) feature does not apply to all markets.

Common procedures

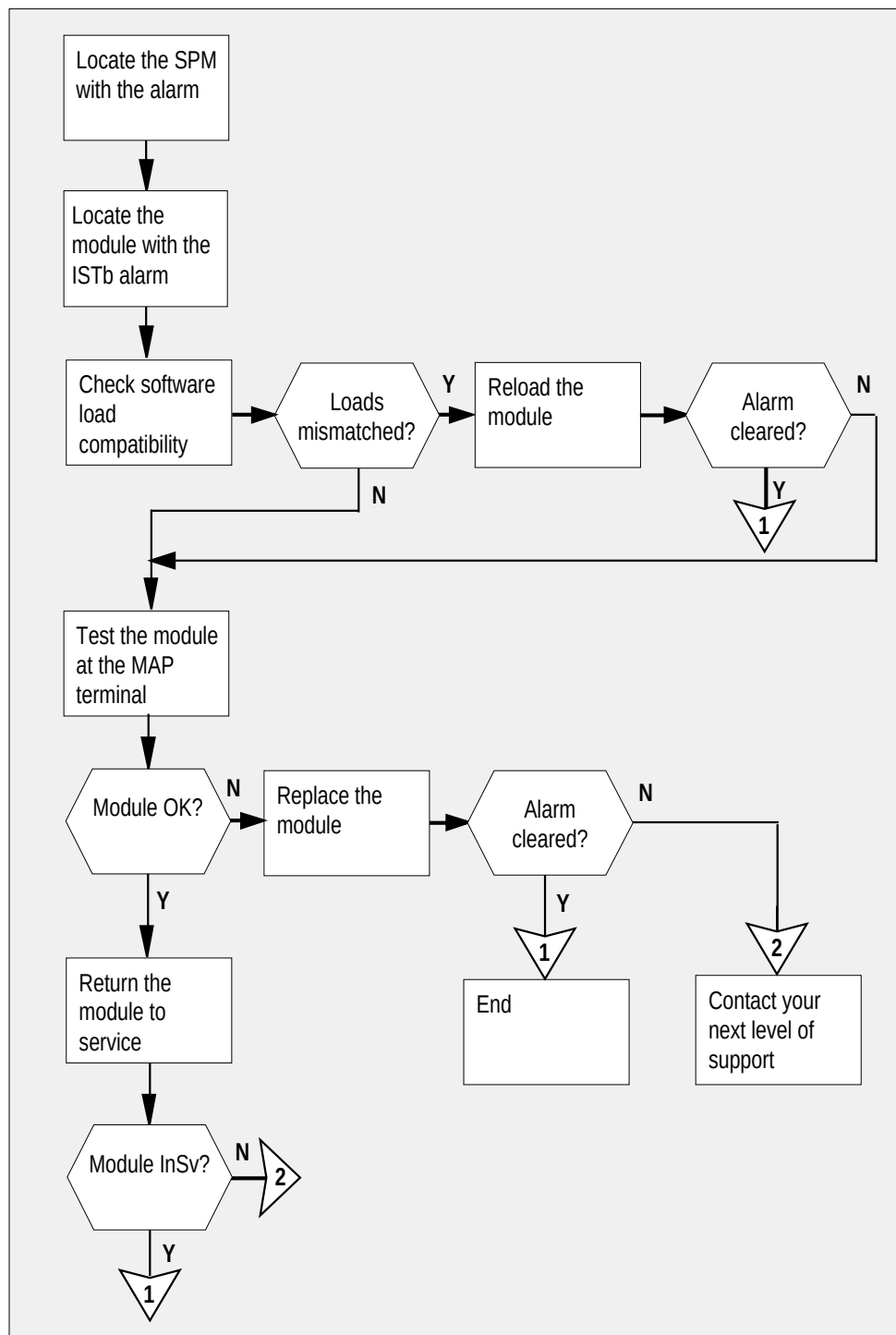
See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM ISTB SPM minor (continued)

Summary of clearing an ISTb alarm



PM 1SPM ISTB SPM minor (continued)

Clearing an ISTB alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI ; MTC ; PM
 and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Show the state of all PMs by typing
>STATUS
 and pressing the Enter key.
- 3 Display the SPMs that are in-service trouble by typing
>DISP STATE ISTB SPM
 and pressing the Enter key.
- 4 Record the number of the SPMs.
- 5 Post each in-service trouble SPM by typing
>POST SPM spm_no
 and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

PM 1SPM ISTB SPM minor (continued)

		SysB	ManB	OffL	CBsy	ISTb	InSv
PM		7	2	2	2	9	16
SPM		0	2	1	0	1	0

SPM 11 **ISTb** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-	----	8	-	----
-----	2	-	----	OC3	0	9	A	-----	2	-	----	9	-	----	-----
DSP	3	3	I	OffL	OC3	1	10	I	-----	3	-	----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	11	-	----	-----
-----	5	-	----	DSP12	12	A	-----	-----	5	-	----	12	-	----	-----
-----	6	-	----	DSP13	13	A	-----	-----	6	-	----	13	-	----	-----
CEM	0	7	A	ISTb	VSP14	14	A	-----	-----	7	-	----	14	-	----

- 6 Determine which of the CEM, OC3, DSP, VSP, ATM, or DLC modules is in-service trouble (ISTb) and select the modules by typing

>SELECT module_type module_no

and pressing the Enter key.

where

module_type

is the type of module (CEM, OC3, DSP, VSP, ATM, or DLC)

module_no

is the number of the module (0 to 27)

Example of a MAP screen:

```

SPM 3      OC3 1      Act  ISTb

Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Working

```

- 7 Show the actual software load by typing

>QUERYMOD

and pressing the Enter key.

Example of a MAP screen:

PM 1SPM ISTB SPM minor (continued)

```
SPM 3      OC3 1      Act  ISTb
```

```
Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Working
```

QueryMod

SPM 12 OC3 0 Query: Request has been submitted.

```
OC3  0 ISTb Act      Loc: Row D  FrPos 64 ShPos  6 ShId 0 Slot  9
Default Load: SPMLoad                      Actual Load: SPMLoad
```

- 8 Check that the software loads match by typing

>TABLE MNCKTPAK

and pressing the Enter key.

Locate the appropriate tuple in table MNCKTPAK by typing

>LOCATE SPM node_id shelf_id slotnum

and pressing the Enter key.

where

node_id

is the node number of the SPM (0 to 63)

shelf_id

is the number of the module shelf (0 or 1)

slotnum

is the number of the module slot (0 to 14)

- 9 Display the tuple and compare the actual software load to the datafilled software load by typing

>DISPLAY

and pressing the Enter key.

Example of a MAP screen:

```
SPM 3      OC3 1      Act  ISTb
```

```
Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Working
dis
```

```
SPM 11 0  9 OC3 0 1 WORKING (SYSB CR RPT) (MANB MJ RPT)
              (ISTB MN RPT) (PROTFail CR RPT) $
              NTLX71AA      01      SPMLoad
```

- 10 Download matching software by typing

>LOADMOD

PM 1SPM ISTB SPM minor (continued)

and pressing the Enter key.

Example of a MAP screen:

```
SPM 3      OC3 1      Act  ISTb

Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Spare
SPM 3 OC3 1 Load: Request has been submitted.
```

- 11** List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

- 12** Determine whether the alarm has cleared.

- 13** Perform an in-service test on the module by typing

>TST

and pressing the Enter key.

Example of a MAP screen:

```
SPM 3      OC3 1      Act  ISTb

Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Spare
Clock:Input Ref: Internal      Source: C Side 0  Current Mode:
Acquire
Tst
SPM 3 CEM 0 Test : Request has been submitted.
SPM 3 CEM 0 Test : Test passed.
```

- 14** Determine the test condition of the module.

- 15** Manual busy the module by typing

>BSY

and pressing the Enter key.

- 16** Perform an out-of-service test on the module by typing

>TST

and pressing the Enter key.

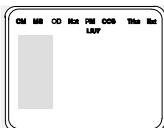
- 17** Determine the test condition of the module.

**PM 1SPM ISTB SPM
minor (end)**

- 18** Return the module to service by typing
>RTS
and pressing the Enter key.
- 19** Determine the state of the module.
- 20** Replace the CEM, OC3, DSP, VSP, ATM, or DLC module, as appropriate. For detailed instructions, see one of the following the *Card Replacement Procedures*. When you have completed the procedure, return to this point.
- "SPM NTLX63AA CEM card"
 - "SPM NTLX71AA OC3 card"
 - "SPM NTLX65AA DSP card"
 - "SPM NTLX66AA VSP card"
 - "SPM NTLX73AA ATM card"
- 21** List the alarms on the module by typing
>LISTALM
and pressing the Enter key.
- 22** Determine whether the alarm has cleared.
- 23** For further assistance, contact the personnel responsible for the next level of support.
- 24** You have completed this procedure. Return to the CI level of the MAP screen by typing
>QUIT ALL
and pressing the Enter key.

PM 1SPM MANB SPM major

Alarm banner

	CM	MS	IOD	Net	PM 1SPM M	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A major (M) alarm indicator appears beneath it.

Meaning

The DMS-Spectrum Peripheral Module (SPM) is in manual busy (MANB) state. A severe disruption of service exists. Immediate attention is required.

The following logs relate to the MANB alarm:

- CARR500
- CARR501
- CARR510
- CARR512
- SPM300
- SPM331
- SPM500
- SPM630

Tables MNCKTPAK and MNNODE contain datafill related to the MANB alarm.

Impact

The following devices generate MANB alarms:

- NODE
- CEM
- OC3
- DSP
- VSP

**PM 1SPM MANB SPM
major (continued)**

- ATM
- DLC

The active module generating the alarm is not in service, and you must return it to service.

Common procedures

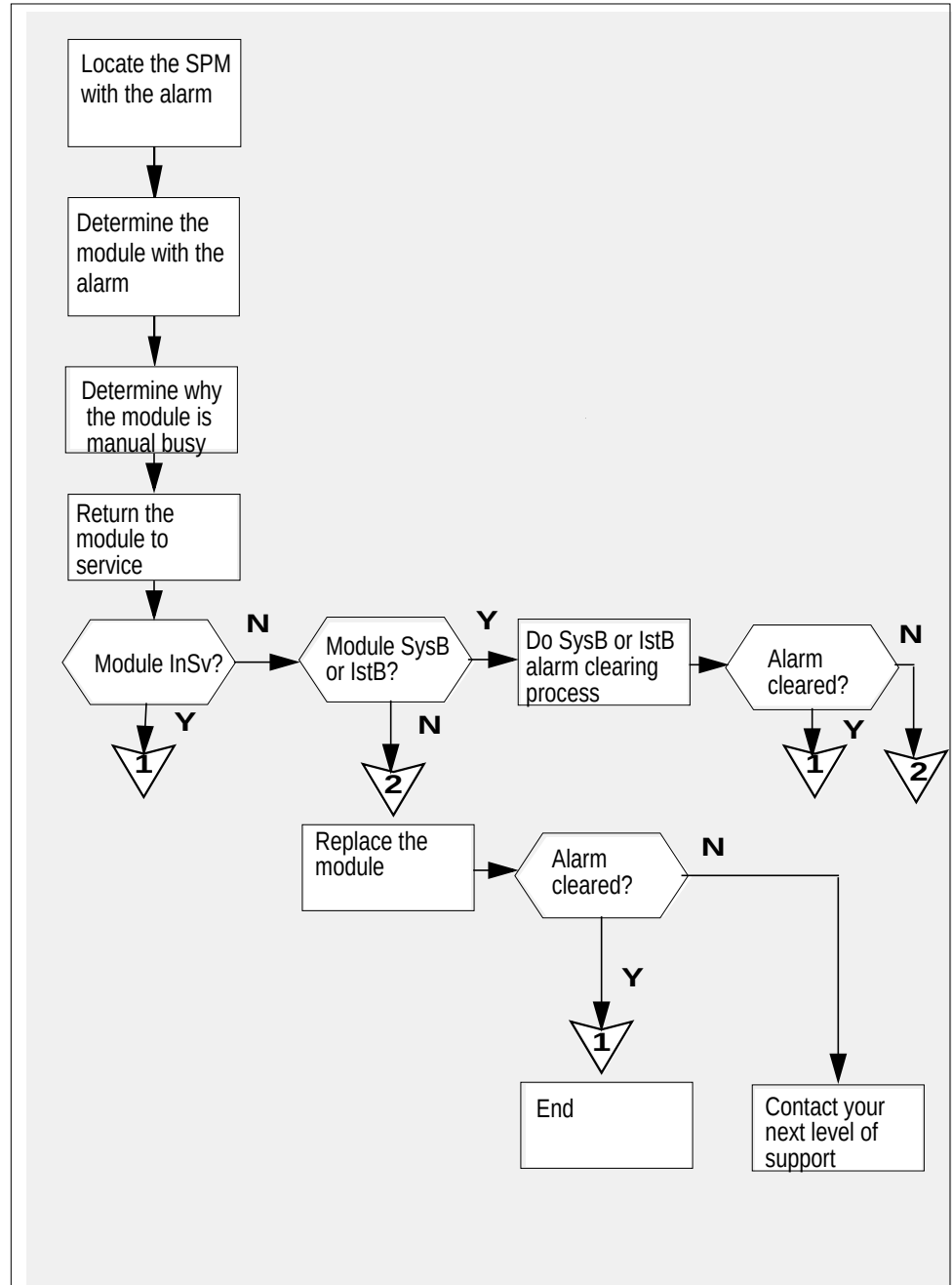
See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM MANB SPM major (continued)

Summary of clearing a MANB alarm



PM 1SPM MANB SPM major (continued)

Clearing a MANB alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Show the state of all PMs by typing

>STATUS

and pressing the Enter key.

- 3 Display the SPM that are manual busy by typing

>DISP STATE MANB SPM

and pressing the Enter key.

- 4 Record the number of teh SPMs

- 5 Post each manual busy SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

PM 1SPM MANB SPM major (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
    PM      7     2     2     2     9     16
    SPM     0     2     1     0     0     0

SPM  11  SysB  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8 I SysB  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9 A -----  ----- 2 - ----  ----- 9 - ----
DSP 3  3 I OffL  OC3 1 10 I -----  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A -----  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A -----  ----- 6 - ----  ----- 13 - ----
CEM 0  7 A ManB  VSP14 14 A -----  ----- 7 - ----  ----- 14 - ----

```

- 6 Determine which of the CEM, OC3, DSP, VSP, ATM, or DLC modules is manual busy (ManB) and select the modules by typing

>SELECT module_type module_no

and pressing the Enter key.

where

module_type

is the type of module (CEM, OC3, DSP, VSP, ATM, or DLC).

module_no

is the number of the module (0 to 27).

Example of a MAP screen:

```

SPM 3    OC3 1 Act mANb

Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10  Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Spare

```

- 7 If the status of the module is ManB, determine why the module was manual busied. Continue with step 8 as soon as possible.
- 8 Return the module to service by typing
- >RTS**
- and pressing the Enter key.
- 9 Determine the state of the module.

If the module is	Do
InSv	step 16

PM 1SPM MANB SPM major (end)

If the module is	Do
SysB or IstB	step 10
any other state	step 12

10 Perform the alarm clearing procedures for SysB or IstB, as appropriate.

11 Determine the state of the module.

If the module is	Do
InSv	step 16
any other state	step 12

12 Replace the CEM, OC3, DSP, VSP, or ATM module as appropriate. For detailed instructions, see one of the following *Card Replacement Procedures*. When you have completed the card replacement procedure, return to this point.

- “SPM NTLX63AA CEM card”
- “SPM NTLX71AA OC3 card”
- “SPM NTLX65AA DSP card”
- “SPM NTLX66AA VSP card”
- “SPM NTLX73AA ATM card”
- “SPM NTLX72AA DLC card”

13 List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

14 Determine whether the alarm has cleared.

If the alarm list indicates	Do
MANB	step 15
None	step 16

15 For further assistance, contact the personnel responsible for the next level of support.

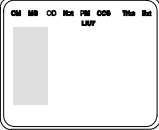
16 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM MANBNA SPM
major

Alarm banner

	CM	MS	IOD	Net	PM 1SPM M	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the Node level of the MAP screen, SPM preceded by a number appears under the PM header of the alarm banner and a major (M) alarm indicator appears beneath it.

Meaning

A DMS-Spectrum Peripheral Module (SPM) has been busied manually (MANB) and it is not accessible (NA). The SPM is in ManB state and a network error caused it to be isolated from the enhanced network (ENET) links or the message switch (MS) ports.

Log SPM600 relates to the MANBNA alarm. Tables MNCKTPAK and MNNODE contain datafill related to the MANBNA alarm.

Impact

The MANBNA alarm is generated by the common equipment module (CEM) and the node.

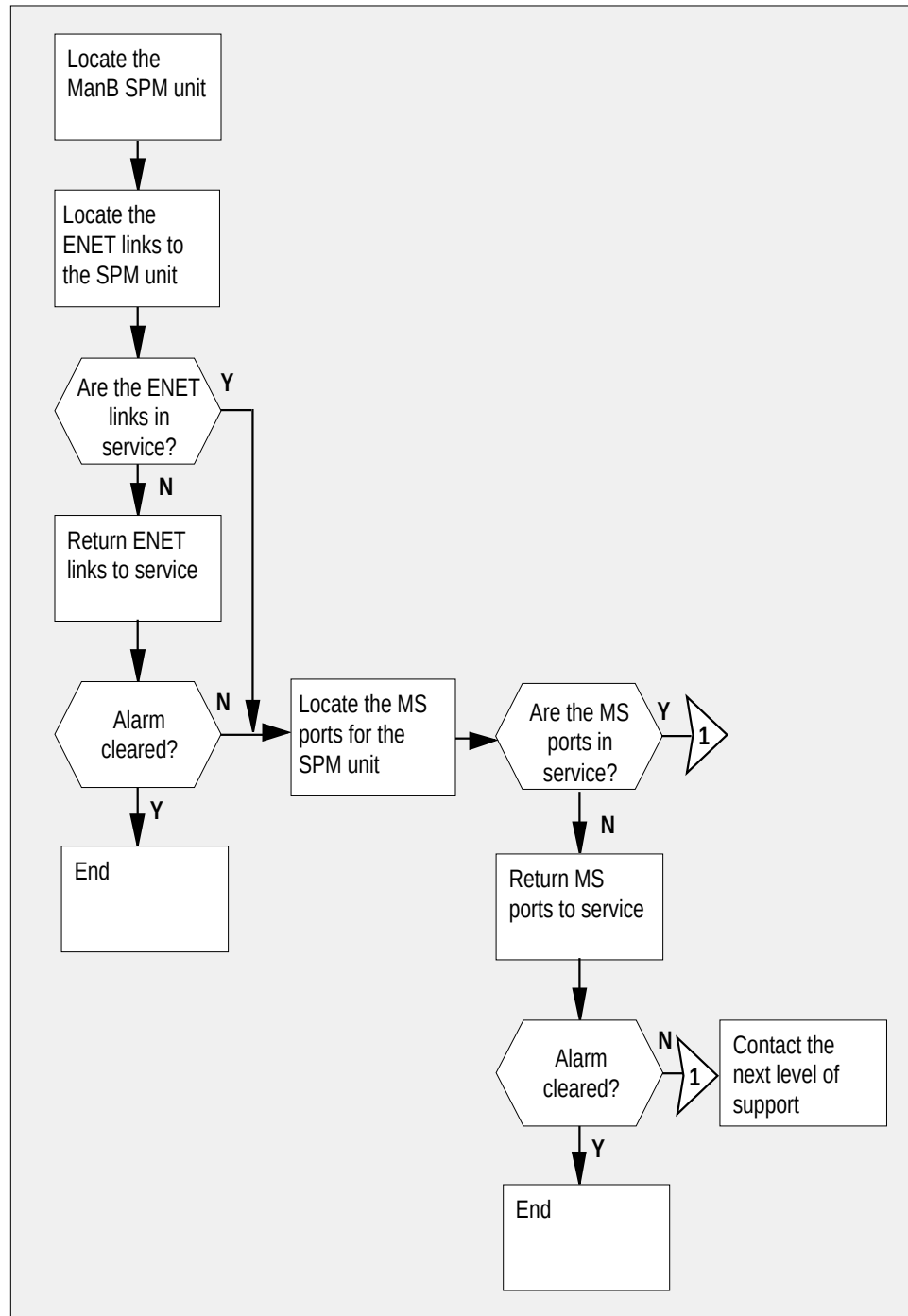
A serious disruption of service exists. Immediate attention is required.

Common procedures

See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM 1SPM MANBNA SPM
major (continued)****Summary of clearing a MANBNA alarm**

PM 1SPM MANBNA SPM major (continued)

Clearing a MANBNA alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI;MTC;PM
and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the system-busy SPMs by typing
>DISP STATE MANB SPM
and pressing the Enter key.
- 3 Record the number of the SPMs.
- 4 Post each manual-busy-not-available SPM by typing
>POST SPM spm_no
and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	1	2	1	0	0	0

SPM 11 **ManB** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat		
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-	----	-----	8	-	----	
-----	2	-	----	OC3	0	9	A	----	-----	2	-	----	-----	9	-	----	
DSP	3	3	I	OffL	OC3	1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	-----	4	-	----	-----	11	-	----	
-----	5	-	----	DSP12	12	A	----	-----	-----	5	-	----	-----	12	-	----	
-----	6	-	----	DSP13	13	A	----	-----	-----	6	-	----	-----	13	-	----	
CEM	0	7	A	ManB	-----	14	A	----	-----	7	-	----	-----	14	-	----	

- 5 List the status of the ENET links by typing
>TRNSL
and pressing the Enter key.

PM 1SPM MANBNA SPM major (continued)

Example of a MAP screen:

SPM 11 CEM 0 Act SysB (NA)

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLOAD

Clock:

Input Ref: Source: Current Mode:
TrnsL

Link 1: ENET 0 0 30 0; Status: OK

Link 2: ENET 1 0 30 1; Status: NA

Link 3: ENET 0 0 30 2; Status: OK

Link 4: ENET 1 0 30 3; Status: OK

- 6 Determine whether the ENET links are in service.

If the status of the ENET links is	Do
OK	step 9b
NA or UR	step 7

- 7 If the status of the ENET links is NA (not available), Determine whether they were manual busied and why. Return the ENET links to service as soon as possible. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore ENET links to service.

- 8 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 10
MANBNA	step 9

- 9 Perform the following substeps to record ENET information:

- a List the status of the ENET links by typing

>TRNSL

and pressing the Enter key.

Example of a MAP screen:

PM 1SPM MANBNA SPM major (continued)

```

CI:
>table eninv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: ENINV
>heading
ENKEY ENCLASS FRTYPE FRNO      FRPEC      SHPEC MSCARD0 MSLINK0 MSPORT0 FLOOR0
ROW0  FRPOS0 SHELF0                      LOAD0 MSCARD1 MSLINK1 MSPORT1
FLOOR1 ROW1 FRPOS1 SHELF1                      LOAD1
-----
>pos 0
  0      PRI      ENC      0 NT9X05AB NT9X0801      6      0      0      1
  F      2      39                      ENX08AX      10      0      0
  1      F      1      39                      ENX08AX

```

- d** Record the MS card numbers under MSCARD0 and MSCARD1 (6 and 10 in the example above).

11 Locate the MS cards by typing

>MAPCI;MTC;MS;SHELF 0;CARD ms_card_no

and pressing the Enter key.

where

ms_card_no

is the number of the MS card

Example of a MAP screen:

```

Message Switch   Clock   Shelf 0      Inter-MS Link 0 1
MS 0             .      Master   F      R R
MS 1             S      Slave    C      C C

Shelf 0          1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain                < > < > < > < > |   |   |
MS 0  . . . . . F . . . F . . . . . - . . . . . F .
MS 1  C C C C C C C C C C C C C C C C C C - C C C C C C

Card 06 Protocol Port  0____3  4____7  8____11 12____15
MS 0  . DS512  64 . . . . . P P . . . .
MS 1  C DS512  64 C P P P P P P P P P P P P P

```

12 Do the following substeps to check the status of both ports (0 and 1) on both MS cards (MSCARD0 and MSCARD1).

PM 1SPM MANBNA SPM major (continued)

- a Determine the state of each MS card port that connects to the SPM with the SYSBNA alarm, by typing

>TRNSL ms_card_port

and pressing the Enter key.

where

ms_card_port

is the number of the MS card port (0 or 1)

Example of a MAP screen:

```
PORT 20=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 21=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 22=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 23=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 24=SPM 12 (OK :AV SYST ACC NCP MSRR PSRR)
```

- b Repeat Step 12a. for the second MS port.
- c Repeat Step 11 for the other MS card and repeat Steps 12a. and 12b. to check the MS ports on that card. INSERT TABLE

If the status of the MS ports shows	Do
OK for all four ports	step 15
NA or UR for any port	step 13

- 13 Return the MS ports to service. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore MS ports to service.

- 14 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 16
SYSBNA	step 15

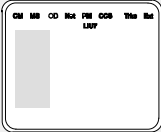
- 15 For further assistance, contact the personnel responsible for the next level of support.

**PM 1SPM MANBNA SPM
major (end)**

- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing
>QUIT ALL
and pressing the Enter key.

PM 1SPM MFLOW SPM
minor

Alarm display

	CM	MS	IOD	Net	PM 1SPM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor () alarm indicator appears beneath it.

Meaning

The low water mark threshold was exceeded for multifrequency (MF) resources. The demand for MF resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the MFLOW alarm. Tables MNCKTPAK and MNNODE contain datafill related to the MFLOW alarm.

Impact

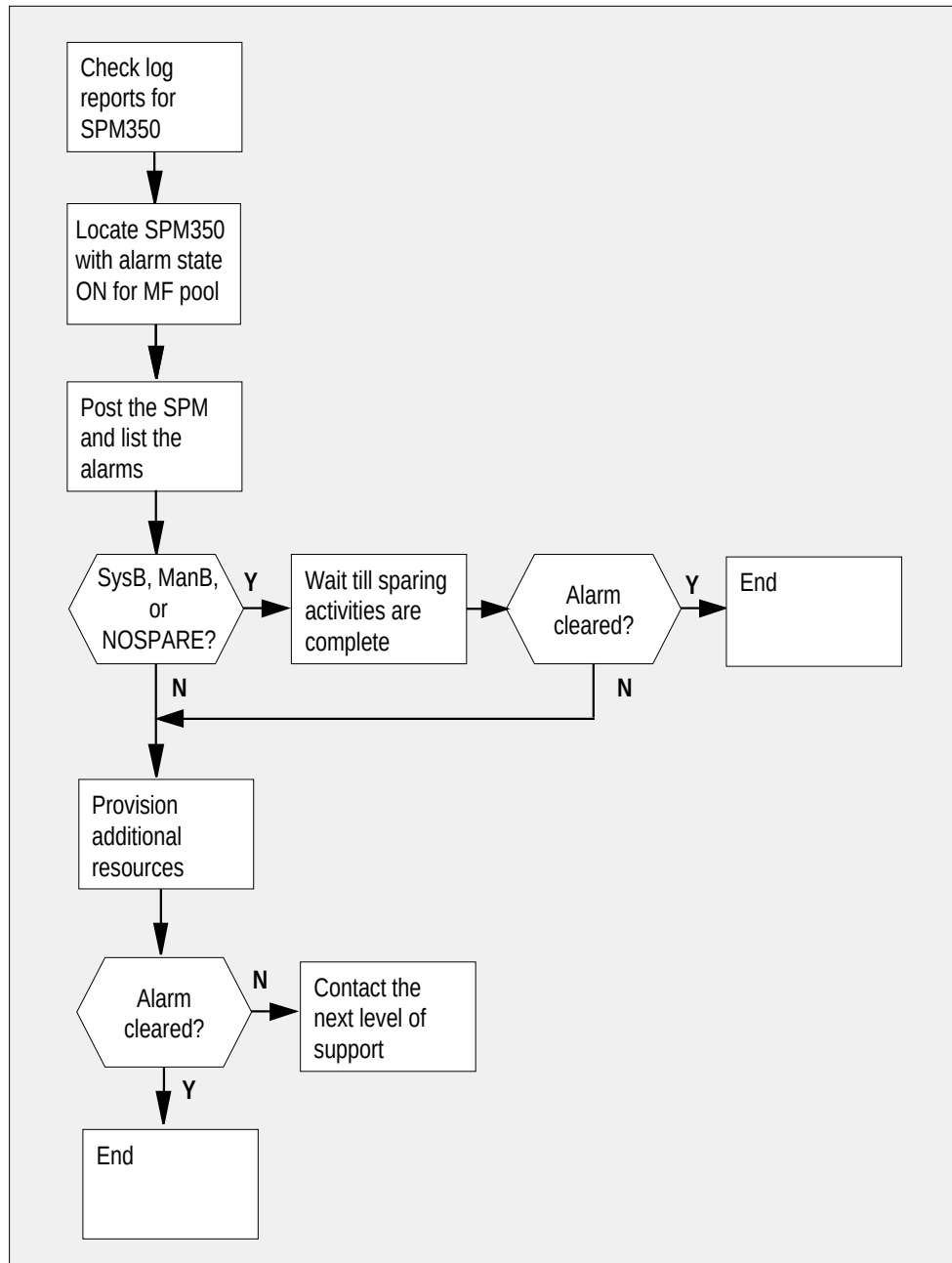
If the threshold setting is low enough to ensure that there are adequate resources in the MF pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available MF resources cannot meet the demand, call processing or grades of service, or both, are degraded.

Common procedures

See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM 1SPM MFLOW SPM
minor (continued)****Summary of clearing an MFLOW alarm**

PM 1SPM MFLOW SPM minor (continued)

Clearing an MFLOW alarm

At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

>LOGUTIL

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

Example of a MAP screen:

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL        = MF
SPM_NUM     = 20
NUM_FREE    = 39
NUM-INUSE   = 61
```

Note: OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM_STATE = ON and POOL = MF . Record the number of the SPM.

- 4 Post the SPM by typing

>MAPCI;MTC;PM;POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63) shown in the log report

Example of a MAP screen:

PM 1SPM MFLOW SPM minor (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM         7       2       2       2       9      16
SPM        0       1       1       0       0       1

SPM   20  InSv  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8  I InSv  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9  A InSv  ----- 2 - ----  ----- 9 - ----
DSP 3   3  I OffL  OC3 1 10  I InSv  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A InSv  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A InSv  ----- 6 - ----  ----- 13 - ----
CEM 0   7  A InSv  ----- 14 A InSv  ----- 7 - ----  ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```

ListAlm
ListAlm: SPM 11

```

SEVERITY	ALARM	ACTION
Critical	None	
Major	None	
Minor	MFLOW	RPT
No_Alarm	None	

- 6 Do the following substeps to Determine whether sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.

If the alarm list indicates	Do
Major NOSPARE	step 6 b
Major None	step 6 c

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.
- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.

PM 1SPM MFLOW SPM minor (end)

d Wait until the state of the DSPs indicates InSv.

- 7 When the DSPs are returned to service, Determine whether the alarm has cleared.

If the alarm list indicates	Do
Minor MFLOW	step 8
Minor None	step 11

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

Note: Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

If the alarm list indicates	Do
Minor MFLOW	step 10
Minor None	step 11

- 10 For further assistance, contact the personnel responsible for the next level of support.

- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM NOSPARE SPM major

Alarm banner

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1SPM	.	.	.	.	.
.	.	.	.	M	.	.	.	.	.

Indication

At the OC3, VSP, DSP, or ATM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a major (M) alarm indicator appears beneath it.

Meaning

The last spare module in a protection group is not available for service.

The DMS-Spectrum Peripheral Module (SPM) logs SPM330 and SPM331 relate to the NOSPARE alarm. Table MNPRTGRP contains datafill related to the NOSPARE alarm.

Impact

No sparing capability alarms are generated for the following modules:

- OC3
- DSP
- VSP
- ATM

This alarm indicates that redundant capability for one of these modules is not available. A serious disruption of service can occur and immediate attention is required.

Common procedures

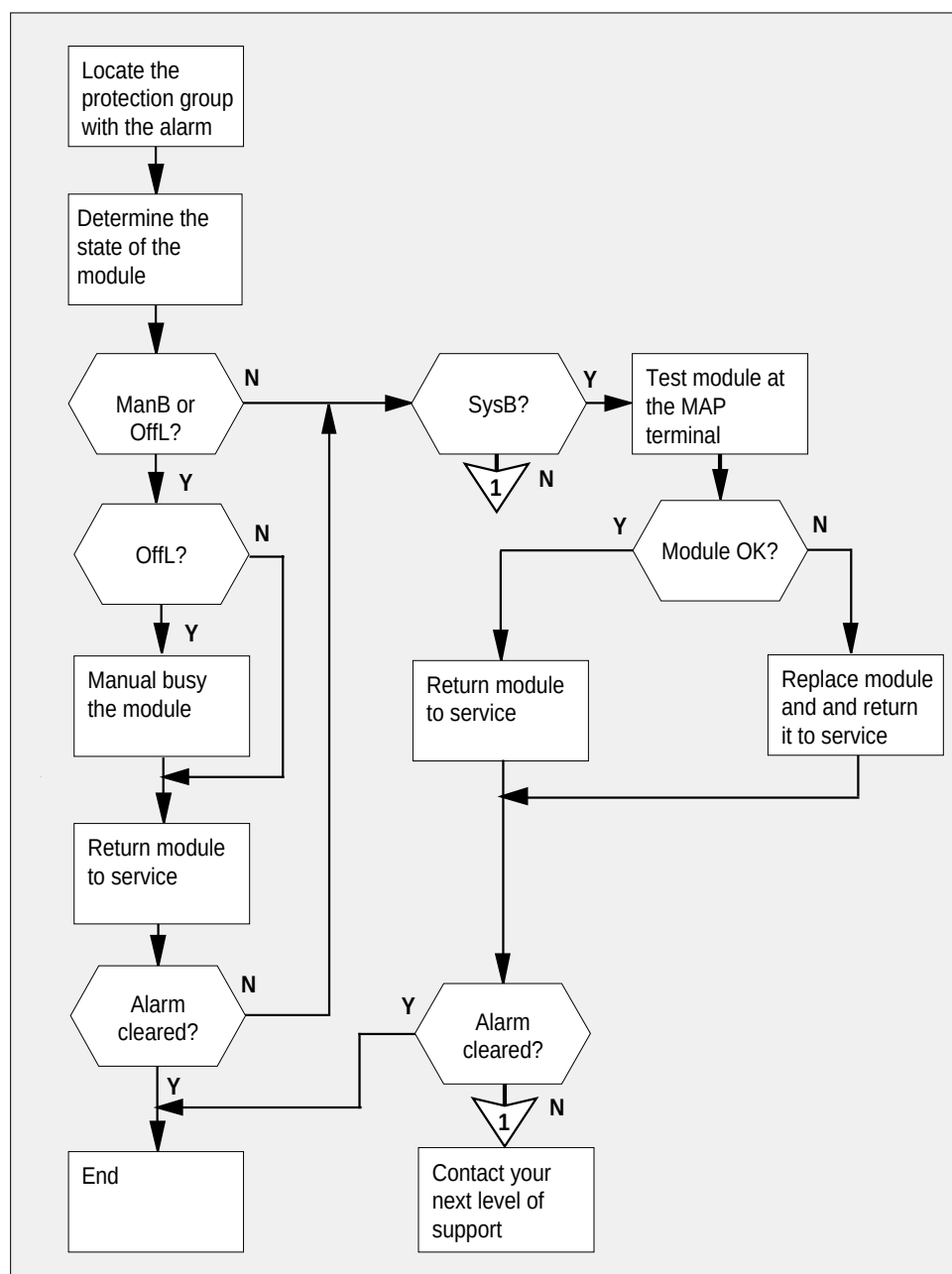
See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM NOSPARE SPM major (continued)

Summary of clearing a NOSPARE alarm



PM 1SPM NOSPARE SPM major (continued)

Clearing a NOSPARE alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Show the state of all PMs by typing

>STATUS

and pressing the Enter key.

- 3 Post the SPMs by typing

>POST SPM all

and pressing the Enter key.

where

all

refers to all of the SPMs (0 to 63)

- 4 List the alarms on each SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

PM 1SPM NOSPARE SPM major (continued)

		SysB	ManB	OffL	CBsy	ISTb	InSv
PM		7	2	2	2	9	16
SPM		0	2	1	0	0	0

SPM 11 **SysB** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM 1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3 0	9	A	----	-----	2	-	----	-----	9	-	----
DSP 3	3	I	OffL	OC3 1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----
CEM 0	7	A	SysB	VSP14	14	A	----	-----	7	-	----	-----	14	-	----

ListAlm
ListAlm: SPM 11 CEM 0

SEVERITY	ALARM	ACTION
-----	-----	-----
Critical	None	
Major	NOSPARE	RPT
Minor	None	
No_Alarm	None	

- 5 Record the number of each SPM with a NOSPARE alarm.
- 6 Determine which of the OC3, DSP, VSP, or ATM modules are not in service (InSv, CBsy, or IsTb) and select the modules by typing

>SELECT module_type module_number

and pressing the Enter key.

where

module_type

is the type of module (OC3, DSP, VSP, or ATM).

module_no

is the number of the module (0 to 27)

- 7 Locate the NOSPARE alarms on each module by typing

>PROT;LISTALM

and pressing the Enter key.

- 8 Determine the state of the module from the LISTALM display.

Example of a MAP screen:

PM 1SPM NOSPARE SPM major (continued)

```

SPM 16 InSv
Prot Grp: VSP_GRP 1 Mode: Non-revertive Schema: m_for_n
Sh0 U R A Stat Sh0 U R A Stat Sh1 U R A Stat Sh1 U R A Stat
1 -- - - - - 8 -- - - - - 1 0 W A ManB 8 -- - - - -
2 -- - - - - 9 -- - - - - 2 1 W A ManB 9 -- - - - -
3 -- - - - - 10 -- - - - - 3 -- - - - - 10 -- - - - -
4 -- - - - - 11 -- - - - - 4 -- - - - - 11 -- - - - -
5 -- - - - - 12 -- - - - - 5 -- - - - - 12 -- - - - -
6 -- - - - - 13 -- - - - - 6 -- - - - - 13 -- - - - -
7 -- - - - - 14 -- - - - - 7 -- - - - - 14 -- - - - -
ListAlm

```

ListAlm: VSP_GRP 1

SEVERITY	ALARM	ACTION
Critical	None	
Major	NOSPARE	RPT
Minor	None	
No_Alarm	None	

If the module is	Do
OffL	step 9
ManB	step 10
in any other state	step 13

- 9 Return to the module level and set the module to manual busy by typing

>QUIT;BSY;RTS

and pressing the Enter key. Go to Step 11.

- 10 Return to the module level and return the module to service by typing

>QUIT;RTS

and pressing the Enter key.

- 11 List the alarms on the module at the protection level by typing

>PROT;LISTALM

and pressing the Enter key.

Example of a MAP screen:

PM 1SPM NOSPARE SPM**major** (continued)

ListAlm

ListAlm: VSP_GRP 1

SEVERITY	ALARM	ACTION

Critical	None	
Major	None	
Minor	None	
No_Alarm	None	

- 12** Determine whether the NOSPARE alarm has cleared.

If the alarm list indicates	Do
NOSPARE	step 13
None	step 21

- 13** Determine the state of the module.

If the module is	Do
SysB	step 14
in any other state	step 20

- 14** Perform an in-service test on the module by typing

>TST

and pressing the Enter key.

Example of a MAP screen:

SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
 Default Load: SPMLoad Prot Role: Spare
 Clock:Input Ref: Internal Source: C Side 0 Current Mode:
 Acquire

Tst**SPM 3 CEM 0 Test : Request has been submitted.****SPM 3 CEM 0 Test : Test passed.**

- 15** Determine the test condition of the module. I

If the test results show	Do
Test passed.	step 16

**PM 1SPM NOSPARE SPM
major (end)**

If the test results show	Do
Test failed.	step 19

- 16** Return the module to service by typing

>RTS

and pressing the Enter key.

- 17** List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

- 18** Determine whether the NOSPARE alarm has cleared.

If the alarm list indicates	Do
NOSPARE	step 20
None	step 21

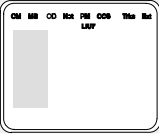
- 19** Replace the OC3, DSP, VSP, or ATM module, as appropriate. For detailed instructions, see one of the following the *Card Replacement Procedures*. When you have completed the procedure, return to this point.
- "SPM NTLX71AA OC3 card"
 - "SPM NTLX65AA DSP card"
 - "SPM NTLX66AA VSP card"
 - "SPM NTLX73AA ATM card"
- 20** For further assistance, contact the personnel responsible for the next level of support.
- 21** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM PROTFAIL SPM
critical

Alarm banner

	CM	MS	IOD	Net	PM 1SPM *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A critical (*C*) alarm indicator appears beneath it.

Meaning

Protection (PROT) switching failed to occur on protected modules.

The following DMS-Spectrum Peripheral Module (SPM) logs relate to the PROTFAIL alarm .

- SPM300
- SPM331
- SPM500
- SPM630

Table MNCKTPAK contains datafill related to the PROTFAIL alarm

Impact

The following devices issue protection failure alarms:

- OC3
- DSP
- VSP
- ATM
- DLC

Attention
The voice signal processor (VSP), asynchronous transfer mode (ATM), and data link controller (DLC) do not apply to all markets.

PM 1SPM PROTFAIL SPM critical (continued)

This alarm indicates that one or more active modules failed and protection switching to back-up modules did not occur. A severe service-affecting condition exists, and the alarm requires immediate corrective action.

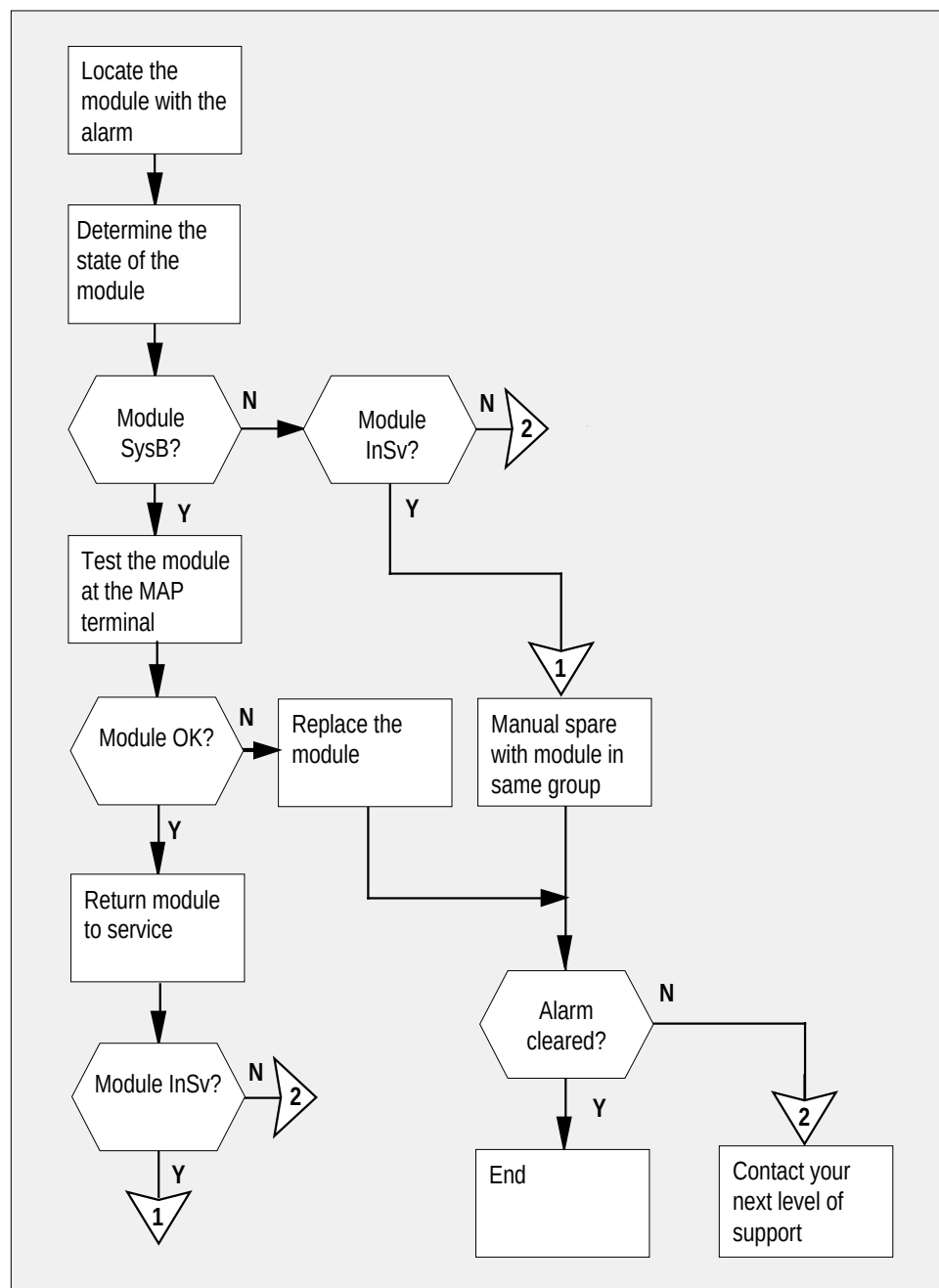
Common procedures

For basic information about SPM alarms, see “Accessing SPM alarms”.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM PROTFAIL SPM critical (continued)



PM 1SPM PROTFAIL SPM critical (continued)

Clearing a PROTFAIL alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Show the state of all PMs by typing

>STATUS

and pressing the Enter key.

- 3 Post the SPMs by typing

>POST SPM all

and pressing the Enter key.

where

all

refers to all of the SPM (0 to 63)

Example of a MAP screen:

PM 1SPM PROTFAIL SPM critical (continued)

		SysB	ManB	OffL	CBsy	ISTb	InSv
PM		7	2	2	2	9	16
SPM		0	2	1	0	0	0

SPM	11	SysB	Loc:	Site	H0ST	Floor	1	Row	A	FrPos	13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
----	1	-	----	CEM 1	8	I	SysB	----	1	-	----	----	8	-	----
----	2	-	----	OC3 0	9	A	----	----	2	-	----	----	9	-	----
DSP 3	3	I	OffL	OC3 1	10	I	----	----	3	-	----	----	10	-	----
----	4	-	----	----	11	-	----	----	4	-	----	----	11	-	----
----	5	-	----	DSP12 12	A	----	----	----	5	-	----	----	12	-	----
----	6	-	----	DSP13 13	A	----	----	----	6	-	----	----	13	-	----
CEM 0	7	A	SysB	VSP14 14	A	----	----	----	7	-	----	----	14	-	----

- 4 Record the number of each SPM with a PROTFAIL alarm.
- 5 Determine which of the OC3, DSP, VSP, ATM, or DLC modules are not in service (InSv, CBsy, or ISTb) and select the modules by typing

>SELECT module_type module_no

and pressing the Enter key.

where

module_type

is the type of module (OC3, DSP, VSP, ATM, or DLC)

module_no

is the number of the module (0 to 27)

Example of a MAP screen:

SPM 3	OC3 1	InAct	OffL												
Loc :	Row	E	FrPos	8	ShPos	24	ShId	0	Slot	10	Prot	Grp	:	1	
Default	Load:	SPMLoad									Prot	Role:	Spare		

- 6 Locate the PROTFAIL alarms on each module by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

PM 1SPM PROTFAIL SPM critical (continued)

```
ListAlm
ListAlm: SPM 11   OC3
```

SEVERITY	ALARM	ACTION
Critical	None	
Major	PROTFAIL	RPT
Minor	None	
No_Alarm	None	

- 7 Determine the state of the module from the SELECT display.

If the module is	Do
SysB	step 8
in any other state	step 11

- 8 Perform an in-service test on the module by typing

>TST

and pressing the Enter key.

Example of a MAP screen:

```
SPM 11   OC3 1   Act  ISTb
```

```
Loc : Row E  FrPos  8 ShPos 24 ShId 0 Slot 10   Prot Grp : 1
Default Load: SPMLoad                      Prot Role: Spare
Clock:Input Ref: Internal      Source: C Side 0   Current Mode:
Acquire
Tst
SPM 3 CEM 0 Test : Request has been submitted.
SPM 3 CEM 0 Test : Test passed.
```

- 9 Determine the test condition of the module.

If the test results show	Do
Test passed.	step 10
Test failed.	step 12

- 10 Return the module to service by typing

>RTS

PM 1SPM PROTFAIL SPM critical (continued)

and pressing the Enter key.

- 11** Determine the state of the module.

If the module is	Do
InSv	step 13
in any other state	step 17

- 12** Replace the module identified in step 5. For detailed instructions, see the SPM section of the *Card Replacement Procedures*. When you complete the card replacement procedure, go to step 13 of this procedure.

- 13** Access the protection level of the MAP screen by typing

>PROT

and pressing the Enter key.

- 14** Do a manual protection switch with a module in the same protection group by typing

>MANUAL from_unit_no to_unit_no

and pressing the Enter key.

where

from_unit_no

is the number (0 to 27) of the module with the alarm.

to_unit_no

is the number (0 to 27) of the inactive module in the same protection group

Example of a MAP screen:

SPM 0 DSP 1 Manual: Request has been submitted.

SPM 0 DSP 0 Manual: Command completed.

- 15** List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

- 16** Determine whether the alarm has cleared.

If the alarm list indicates	Do
PROTFAIL	step 17
None	step 18

**PM 1SPM PROTFAIL SPM
critical (end)**

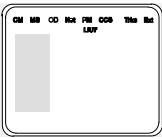
- 17** For further assistance, contact the personnel responsible for the next level of support.
- 18** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM SYSB SPM
critical

Alarm banner

	CM	MS	IOD	Net	PM 1SPM *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A critical (*C*) alarm indicator appears beneath it.

Meaning

A module in a DMS-Spectrum Peripheral Module (SPM) is in system-busy (SYSB) state. A severe disruption of service exists. This alarm requires immediate attention.

The following logs relate to the SYSB alarm:

- NODE500
- SPM300
- SPM331
- SPM500
- SPM630
- CARR500
- CARR501
- CARR510
- CARR511
- CARR512

Tables MNCKTPAK and MNNODE contain datafill related to the SYSB alarm.

Impact

The following devices generate SYSB alarms:

- Node
- CEM

PM 1SPM SYSB SPM
critical (continued)

- OC3
- DSP
- VSP
- ATM
- DLC

Attention
The voice signal processor (VSP), asynchronous transfer mode (ATM), and data link controller (DLC) do not apply to all markets.

The active module generating the alarm is not in service. You must return it to service or replace it.

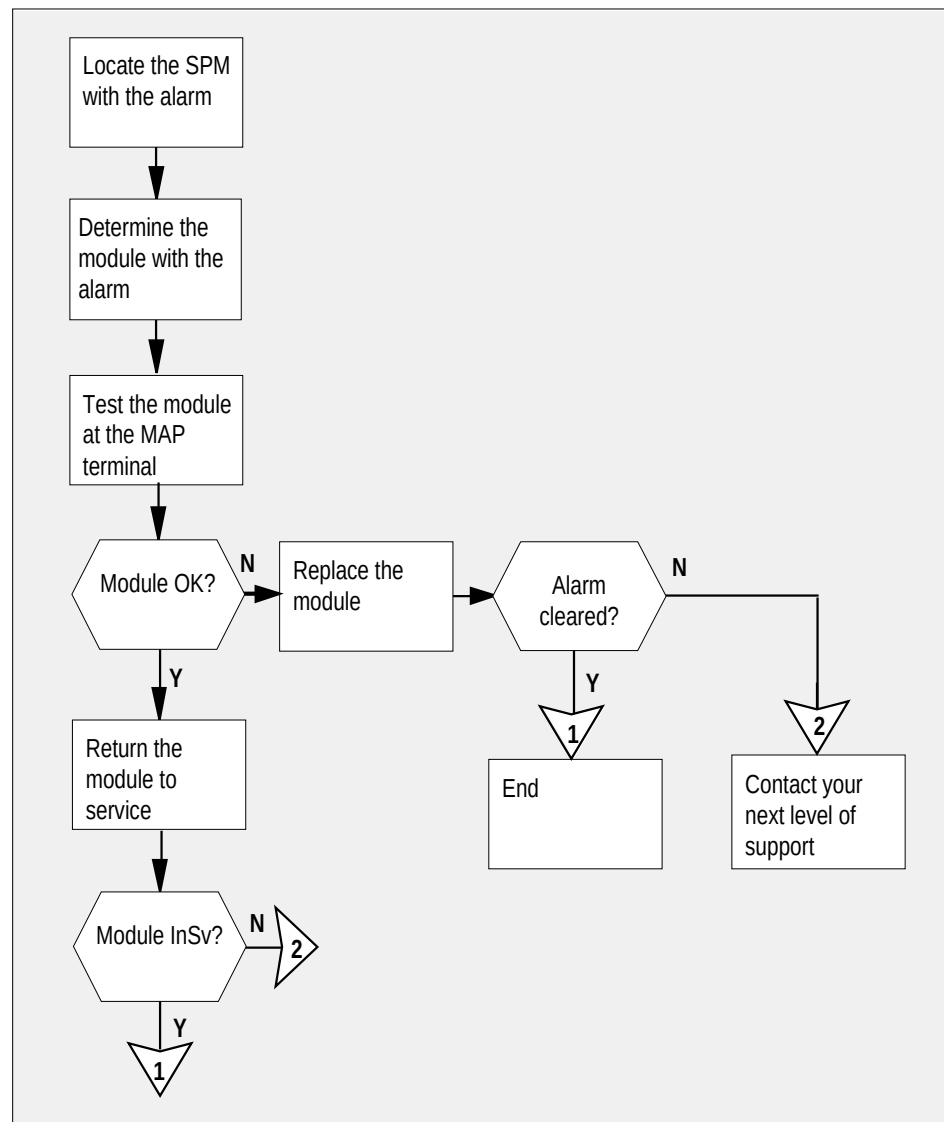
Common procedures

For basic information about SPM alarms, see “Accessing SPM alarms” in this document.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM SYSB SPM critical (continued)



PM 1SPM SYSB SPM critical (continued)

Clearing a SYSB alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Show the state of all PMs by typing

>STATUS

and pressing the Enter key.

- 3 Display the SPMs that are system busy by typing

>DISP STATE SYSB SPM

and pressing the Enter key.

- 4 Record the number of the SPMs.

- 5 Post each system busy SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

PM 1SPM SYSB SPM critical (continued)

		SysB	ManB	OffL	CBsy	ISTb	InSv
PM		7	2	2	2	9	16
SPM		0	2	1	0	0	0

SPM 11 **SysB** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat		
----	1	-	----	CEM	1	8	I	SysB	----	1	-	----	----	8	-	----	
----	2	-	----	OC3	0	9	A	----	----	2	-	----	----	9	-	----	
DSP	3	3	I	OffL	OC3	1	10	I	----	----	3	-	----	----	10	-	----
----	4	-	----	----	----	11	-	----	----	----	4	-	----	----	11	-	----
----	5	-	----	DSP12	12	A	----	----	----	5	-	----	----	12	-	----	
----	6	-	----	DSP13	13	A	----	----	----	6	-	----	----	13	-	----	
CEM	0	7	A	SysB	VSP14	14	A	----	----	7	-	----	----	14	-	----	

- 6 Determine which of the CEM, OC3, DSP, VSP, or ATM modules is system-busy and select the modules by typing

>SELECT module_type module_no

and pressing the Enter key.

where

module_type

is the type of module (CEM, OC3, DSP, VSP, or ATM).

module_no

is the number of the module (0 to 27)

Example of a MAP screen:

SPM 3	OC3 1	InAct	OffL

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare

- 7 Test the module by typing
>TST
and pressing the Enter key.
- 8 Determine the test condition of the module.

If the module test is	Do
OK	step 9
not OK	step 11

PM 1SPM SYSB SPM
critical (end)

- 9** Return the module to service by typing

>RTS

and pressing the Enter key.

- 10** Determine the state of the module.

If the module is	Do
InSv	step 15
any other state	step 14

- 11** Replace the module identified in step 6. For detailed instructions, see the SPM section of the *Card Replacement Procedures*. When you complete the card replacement procedure, go to step 12 of this procedure.

- 12** List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

- 13** Determine whether the alarm has cleared.

If the alarm list indicates	Do
SYSB	step 14
None	step 15

- 14** For further assistance, contact the personnel responsible for the next level of support.

- 15** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

PM 1SPM SYSBNA SPM
critical

Alarm banner

	CM	MS	IOD	Net	PM 1SPM *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the alarm banner and a critical (*C*) alarm indicator appears beneath it.

Meaning

The SPM node is system busy (SYSB) and it is not accessible (NA). The DMS-Spectrum Peripheral Module (SPM) is in SysB state and a network error has caused it to be isolated from the enhanced network (ENET) links or the message switch (MS) ports.

Log ENET311 relates to the SYSBNA alarm. Tables MNCKTPAK and MNNODE contain datafill related to the SYSBNA alarm.

Impact

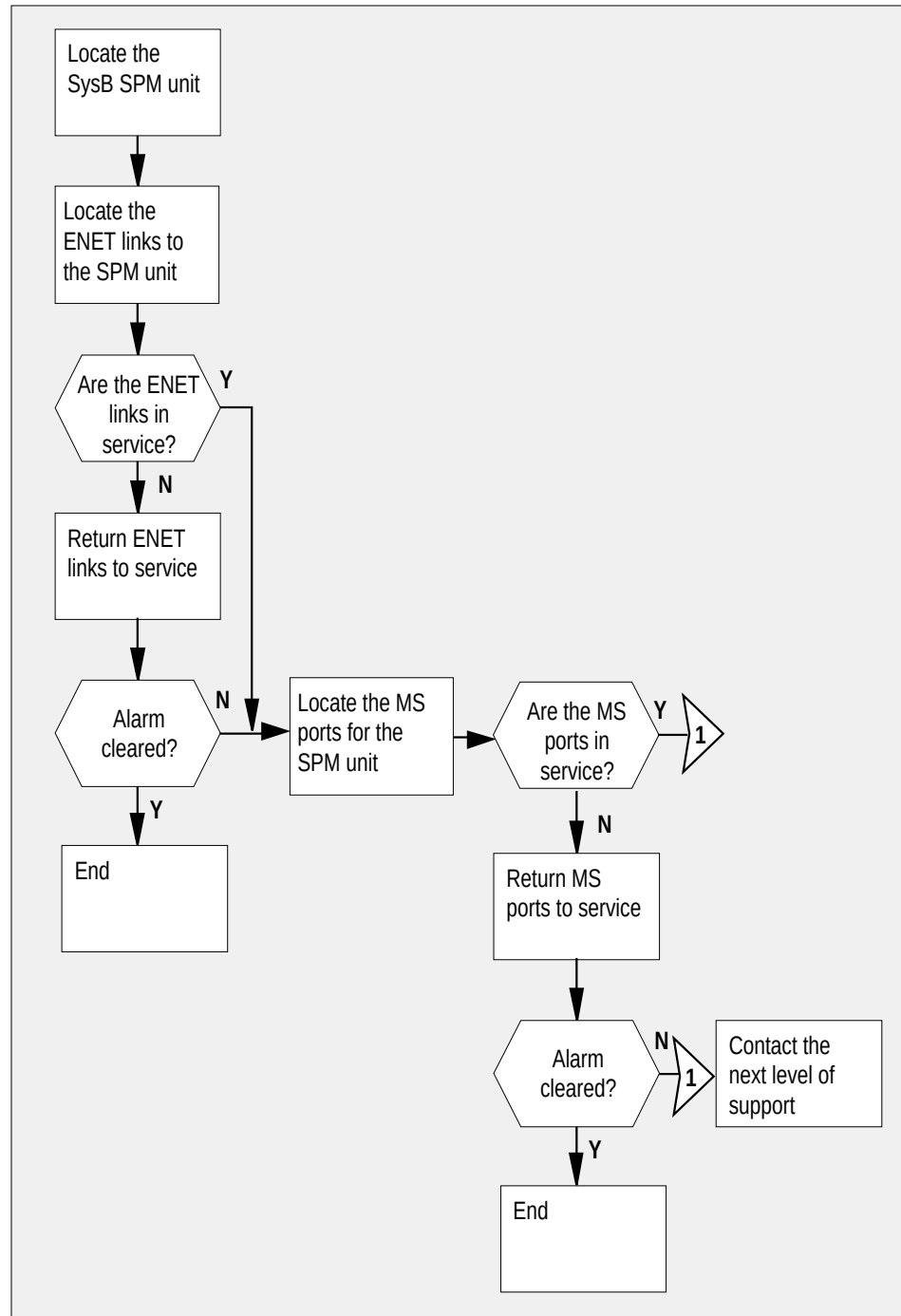
A severe service-affecting condition exists. Immediate corrective action is required.

Common procedures

For basic information about SPM alarms, see “Accessing SPM alarms” in this document.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM SYSBNA SPM
critical (continued)**Summary of clearing a SYSBNA alarm**

PM 1SPM SYSBNA SPM critical (continued)

Clearing a SYSBNA alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the system-busy SPMs by typing

>DISP STATE SYSB SPM

and pressing the Enter key.

- 3 Record the number of the SPMs.
- 4 Post each system-busy-not-available SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no
is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	1	2	1	0	0	0

SPM 11 **SysB** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat	
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3	0	9	A	----	-----	2	-	----	-----	9	-	----
DSP	3	3	I OffL	OC3	1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----	
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----	
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----	
CEM	0	7	A SysB	-----	14	A	----	-----	7	-	----	-----	14	-	----	

PM 1SPM SYSBNA SPM critical (continued)

- 5 List the status of the ENET links by typing

>TRNSL

and pressing the Enter key.

Example of a MAP screen:

```
SPM   11 CEM   0 Act   SysB (NA)

Loc : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
Default Load: SPMLoad
Clock:
Input Ref:           Source:           Current Mode:
Trnsl
Link 1: ENET 0  0  30  0; Status: OK
Link 2: ENET 1  0  30  1; Status: NA
Link 3: ENET 0  0  30  2; Status: OK
Link 4: ENET 1  0  30  3; Status: OK
```

- 6 Determine whether the ENET links are in service.

If the status of the ENET links is	Do
OK	step 9b
NA or UR	step 7

- 7 Return the ENET links to service. Refer to the *Alarm Clearing and Performance Monitoring Procedures Reference Manual*. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore ENET links to service.

- 8 List the alarms on the SPM unit by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 10
SYSBNA	step 9

- 9 Perform the following substeps to record ENET information:

PM 1SPM SYSBNA SPM critical (continued)

- a List the status of the ENET links by typing

>TRNSL

and pressing the Enter key.

Example of a MAP screen:

```
SPM   11 CEM   0 Act   SysB (NA)

Loc : Row F  FrPos 64 ShPos  6 ShId 0 Slot  7
Default Load: SPMLOAD
Clock:
Input Ref:                Source:                Current Mode:
TrnsL
Link 1: ENET 0  0  30  0; Status: OK
Link 2: ENET 1  0  30  1; Status: NA
Link 3: ENET 0  0  30  2; Status: OK
Link 4: ENET 1  0  30  3; Status: OK
```

- 10** b Record the ENET shelf number (30 in the example above).
Do the following substeps to determine the MS card numbers:
- a At the CI level of MAP screen, locate the MS card that the ENET is connected to by typing

>TABLE ENINV

and pressing the Enter key.

- b Create a heading for the tuple by typing

>HEADING

and pressing the Enter key.

- c Position on the tuple for the ENET shelf by typing

>POS enet_shelf_no

and pressing the Enter key.

where

enet_shelf_no

is the number of the ENET shelf

Example of a MAP screen:

PM 1SPM SYSBNA SPM critical (continued)

```

CI:
>table eninv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: ENINV
>heading
ENKEY ENCLASS FRTYPE FRNO    FRPEC    SHPEC MSCARD0 MSLINK0 MSPORT0 FLOOR0
ROW0  FRPOS0 SHELF0                                LOAD0 MSCARD1 MSLINK1 MSPORT1
FLOOR1 ROW1 FRPOS1 SHELF1                                LOAD1
-----
>pos 0
    0    PRI    ENC    0 NT9X05AB NT9X0801          6      0      0      1
    F      2    39                                ENX08AX     10      0      0
    1    F      1    39                                ENX08AX

```

- d Record the MS card numbers under MSCARD0 and MSCARD1 (6 and 10 in the previous example).

11 Locate the MS cards by typing

>MAPCI;MTC;MS;SHELF 0;CARD ms_card_no

and pressing the Enter key.

where

ms_card_no
is the number of the MS card

Example of a MAP screen:

```

Message Switch  Clock  Shelf  0      Inter-MS Link 0 1
MS 0      .      Master  F      R R
MS 1      S      Slave  C      C C

Shelf 0      1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain      < > < > < > < > | | |
MS 0      . . . . . F . . . F . . . . . - . . . . . F .
MS 1      C C C C C C C C C C C C C C C C C - C C C C C C C

Card 06 Protocol Port 0____3 4____7 8____11 12____15
MS 0      . DS512 64 . . . . . P P . . . .
MS 1      C DS512 64 C P P P P P P P P P P P P P

```

12 Do the following substeps to check the status of both ports (0 and 1) on both MS cards (MSCARD0 and MSCARD1).

PM 1SPM SYSBNA SPM critical (continued)

- a Determine the state of each MS card port that connects to the SPM with the SYSBNA alarm, by typing

>TRNSL ms_card_port

and pressing the Enter key.

where

ms_card_port

is the number of the MS card port (0 or 1)

Example of a MAP screen:

```
PORT 20=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 21=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 22=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 23=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 24=SPM 12 (OK :AV SYST ACC NCP MSRR PSRR)
```

- b Repeat step 12a for the second MS port.
- c Repeat step 11 for the other MS card and repeat steps 12a and 12b to check the MS ports on that card.

If the status of the MS ports shows	Do
OK for all four ports	step 15
NA or UR for any port	step 13

- 13** Return the MS ports to service. Refer to the *Alarm Clearing and Performance Monitoring Procedures Reference Manual*. When you have completed the procedure, return to this point.

Note: Contact your next level of support if you are not familiar with the procedures required to restore MS ports to service.

- 14** List the alarms on the SPM unit by typing

>LISTALM

and pressing the Enter key.

If the alarm list shows	Do
None	step 16
SYSBNA	step 15

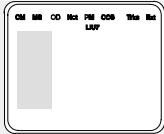
- 15** For further assistance, contact the personnel responsible for the next level of support.

**PM 1SPM SYSBNA SPM
critical (end)**

- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing
- >QUIT ALL**
and pressing the Enter key.

PM1SPM TONESLOW SPM
minor

Alarm display

	CM	MS	IOD	Net	PM 1SPM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.

Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor () alarm indicator appears beneath it.

Meaning

The low water mark threshold was exceeded for tone synthesizer (TONESYN) resources. The demand for TONESYN resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the TONESLOW alarm. Tables MNCKTPAK and MNNODE contain datafill related to the TONESLOW alarm.

Impact

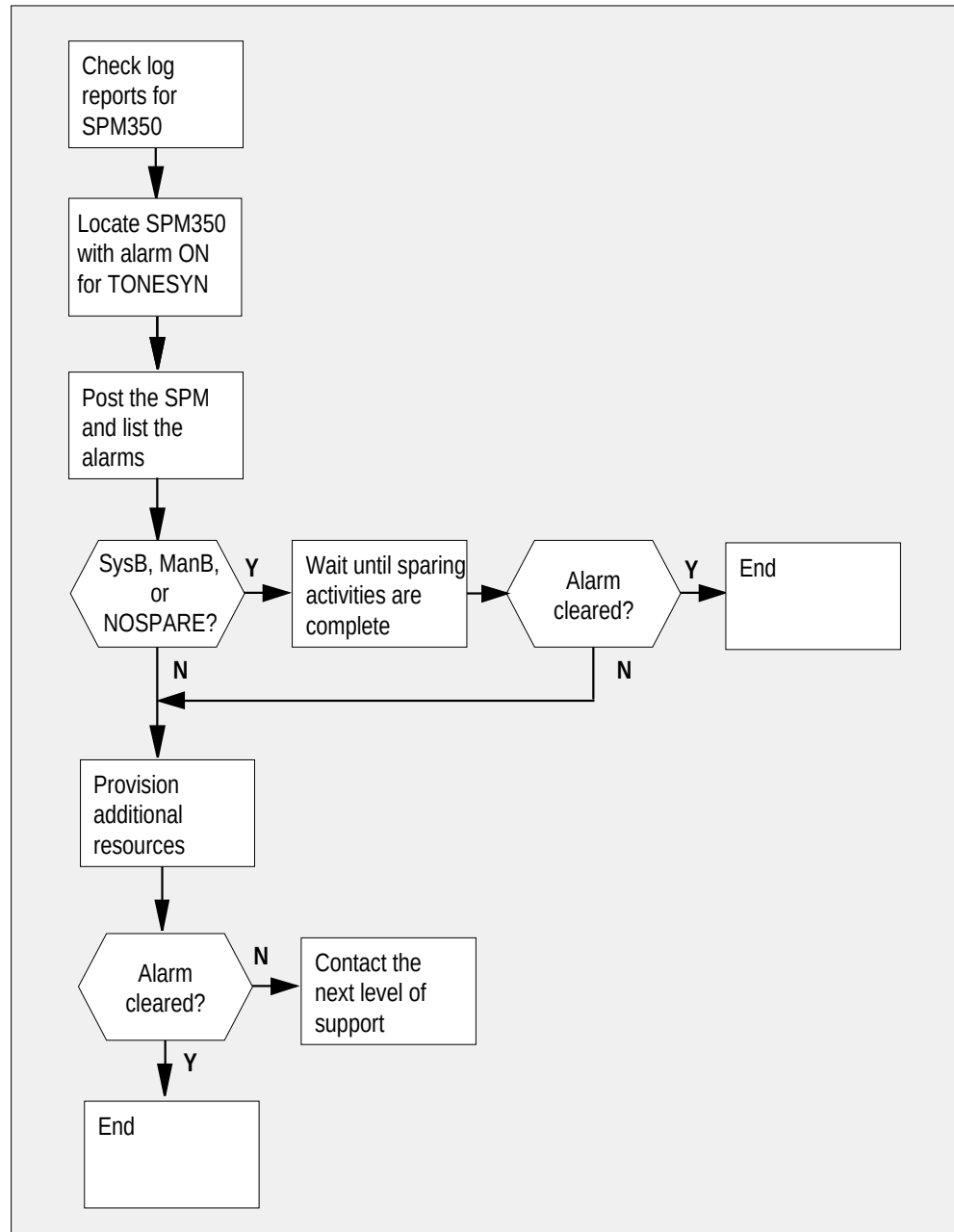
If the threshold setting is low enough to ensure that there are adequate resources in the TONESYN pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available TONESYN resources cannot meet the demand, call processing or grades of service, or both, are degraded.

Common procedures

See “Accessing SPM alarms.”

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM1SPM TONESLOW SPM
minor (continued)****Summary of clearing a TONESLOW alarm**

PM1SPM TONESLOW SPM

minor (continued)

Clearing a TONESLOW alarm

At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

>LOGUTIL

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

Example of a MAP screen:

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL        = TONESYN
SPM_NUM     = 20
NUM_FREE    = 39
NUM-INUSE   = 61
```

Note 1: OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

Note 2:

- 3 Locate an SPM350 log with ALARM_STATE = ON and POOL = TONESYN. Record the number of the SPM.

- 4 Post the SPM by typing

>MAPCI;MTC;PM;POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63) shown in the log report

Example of a MAP screen:

PM1SPM TONESLOW SPM minor (continued)

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM        7       2       2       2       9      16
SPM       0       1       1       0       0       1

SPM   20  InSv  Loc: Site HOST Floor  1 Row A  FrPos 13

Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
----- 1 - ----  CEM 1  8 I  InSv  ----- 1 - ----  ----- 8 - ----
----- 2 - ----  OC3 0  9 A  InSv  ----- 2 - ----  ----- 9 - ----
DSP 3  3 I  OffL  OC3 1 10 I  InSv  ----- 3 - ----  ----- 10 - ----
----- 4 - ----  ----- 11 - ----  ----- 4 - ----  ----- 11 - ----
----- 5 - ----  DSP12 12 A  InSv  ----- 5 - ----  ----- 12 - ----
----- 6 - ----  DSP13 13 A  InSv  ----- 6 - ----  ----- 13 - ----
CEM 0  7 A  InSv  ----- 14 A  InSv  ----- 7 - ----  ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```

ListAlm
ListAlm: SPM 11  OC3 0

```

SEVERITY	ALARM	ACTION
Critical	None	
Major	None	
Minor	TONESLOW	RPT
No_Alarm	None	

- 6 Do the following substeps to determine if sparing activities are underway.
- Check the alarm list for a NOSPARE alarm.
 - Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.

If the alarm list indicates	Do
Major NOSPARE	step 6 b
Major None	step 6 c

- Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
- Wait until the state of the DSPs indicates InSv.

PM1SPM TONESLOW SPM minor (end)

- 7 When the DSPs are returned to service, determine if the alarm has cleared.

If the alarm list indicates	Do
Minor TONESLOW	step 8
Minor None	step 11

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

Note: Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM unit by typing

>LISTALM

and pressing the Enter key.

If the alarm list indicates	Do
Minor TONESLOW	step 10
Minor None	step 11

- 10 For further assistance, contact the personnel responsible for the next level of support.

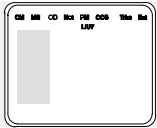
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

**PM 1SPM VCXO70 SPM
minor**

Alarm banner

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1SPM	.	.	.	.	.
	.	.	.	.		.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a minor () alarm indicator appears beneath it.

Meaning

The voltage controlled oscillator (VCXO) has exceeded the 70% threshold of its dynamically adjustable range in order to keep the common equipment module (CEM) synchronized to a timing reference.

The DMS-Spectrum Peripheral Module (SPM) log SPM301 relates to the VCXO70 alarm. Table MNCKTPAK contains datafill related to the VCXO70 alarm.

Impact

Service is not affected.

Common procedures

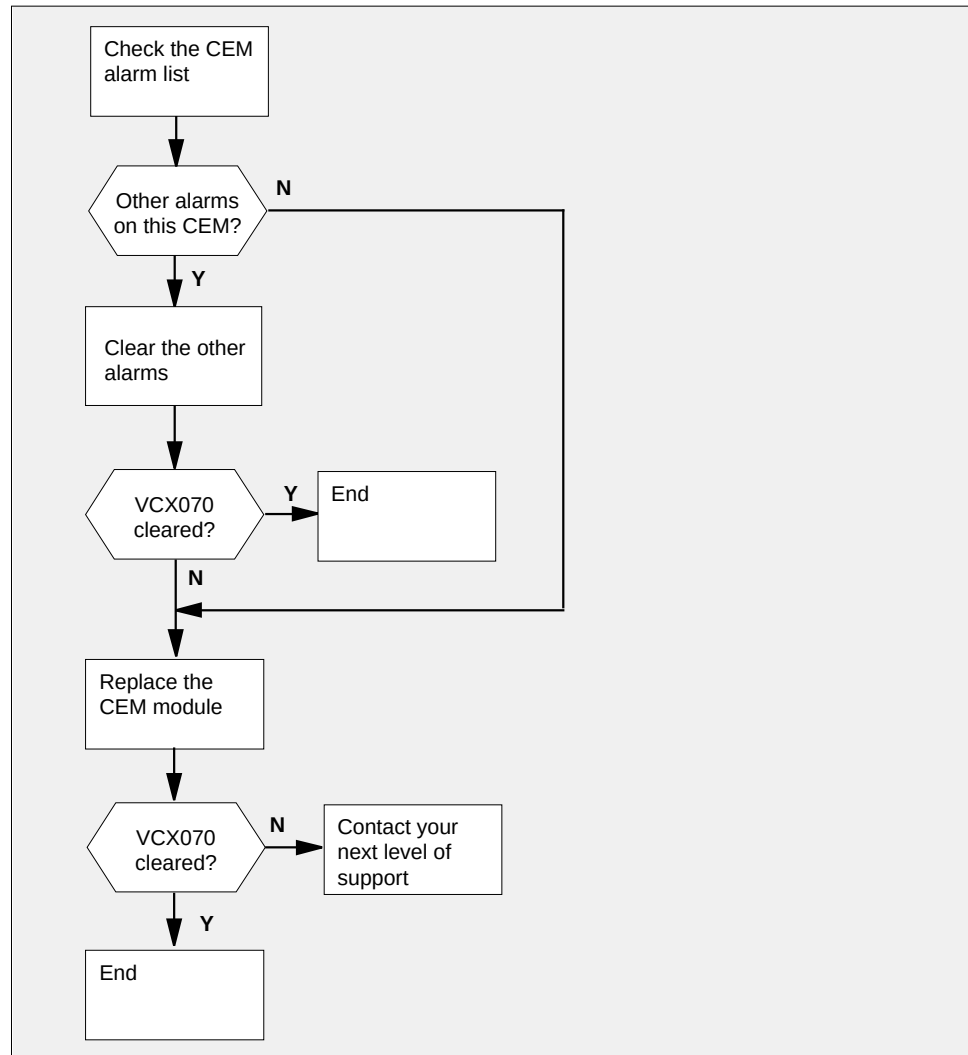
See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM VCX070 SPM minor (continued)

Summary of clearing a VCX070 alarm



Clearing an VCX070 alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI;MTC;PM
and pressing the Enter key.
Example of a MAP screen:

PM 1SPM VCXO70 SPM minor (continued)

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	1	12

- 2 Display all the inservice-trouble (ISTb) SPMs by typing

>DISP STATE ISTb SPM

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each ISTb SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	1	0

SPM 11 **ISTb** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM 1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3 0	9	A	----	-----	2	-	----	-----	9	-	----
DSP 3	3	I	OffL	OC3 1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----
CEM 0	7	A	ISTb	-----	14	A	----	-----	7	-	----	-----	14	-	----

- 5 Select the ISTb CEM by typing

>SELECT CEM cem_no

and pressing the Enter key.

where

cem_no

is the number of the CEM (0 or 1)

Example of a MAP screen:

PM 1SPM VCX070 SPM minor (continued)

```
SPM    11 CEM    0 Act    ISTb
```

```
Loc : Row F FrPos 64 ShPos  6 ShId 0 Slot  7
```

```
Default Load: SPMLoad
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

- 6 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

```
SPM    11 CEM    0 Act    ISTb
```

```
Loc : Row F FrPos 64 ShPos  6 ShId 0 Slot  7
```

```
Default Load: SPMLoad
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

```
ListAlm
```

```
ListAlm: SPM 11 CEM 0
```

SEVERITY	ALARM	ACTION

Critical	None	
Major	None	
Minor	VCX070	RPT
No_Alarm	None	

- 7 Determine whether there are any other CEM alarms.

If there are	Do
no other CEM alarms	step 10
other CEM alarms	step 8

- 8 Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step.

**PM 1SPM VCX070 SPM
minor (end)**

At the MAP terminal

- 9** List the alarms on the CEM by typing
>LISTALM
and pressing the Enter key.

If the alarm list shows	Do
None	step 13
VCX070	step 10

- 10** Replace the CEM module. For detailed instructions, see "SPM NTLX63AA CEM card" in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 11** List the alarms on the CEM by typing
>LISTALM
and pressing the Enter key.

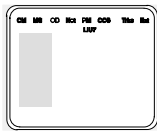
If the alarm list shows	Do
None	step 13
VCX070	step 12

- 12** For further assistance, contact the personnel responsible for the next level of support.

- 13** You have completed this procedure. Return to the CI level of the MAP screen by typing
>QUIT ALL
and pressing the Enter key.

PM 1SPM VCXO90 SPM major

Alarm banner

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1SPM	.	.	.	.	.
	.	.	.	.	M	.	.	.	.	.

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

Meaning

The voltage controlled oscillator (VCXO) has exceeded the 90% threshold of its dynamically adjustable range in order to keep the common equipment module (CEM) synchronized to a timing reference.

The DMS-Spectrum Peripheral Module (SPM) log SPM301 relates to the VCXO90 alarm. Table MNCKTPAK contains datafill related to the VCXO90 alarm.

Impact

Synchronization failure can occur. The affected CEM should be replaced.

Common procedures

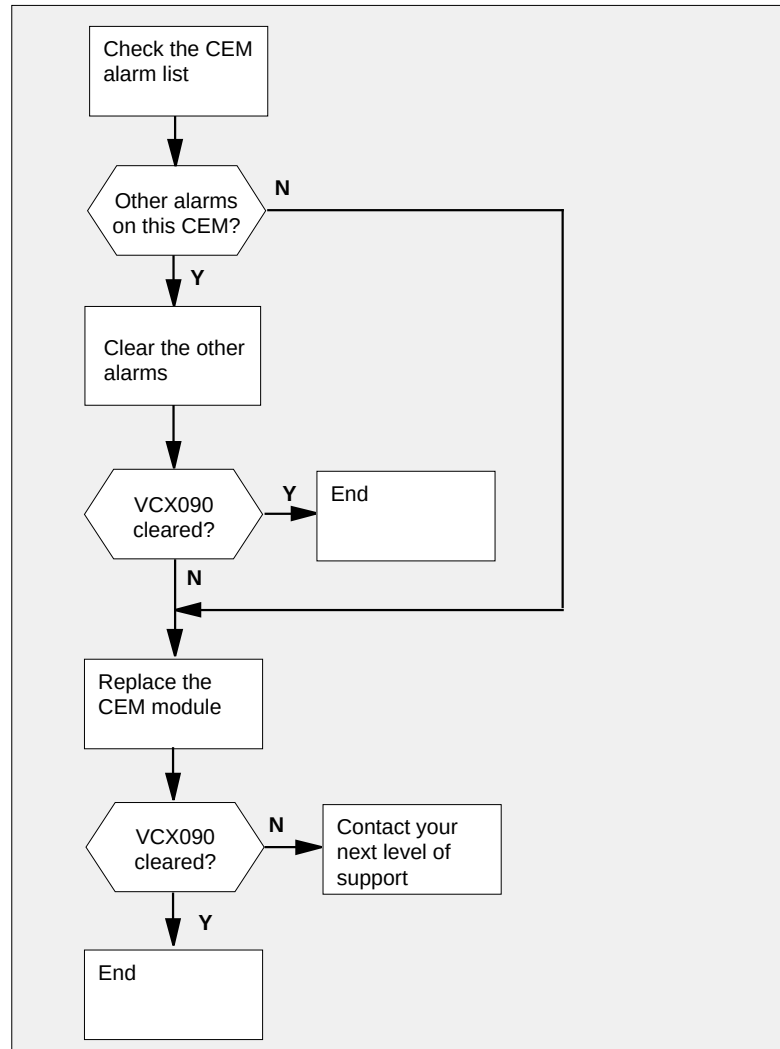
See "Accessing SPM alarms."

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM 1SPM VCX090 SPM major (continued)

Summary of clearing a VCX090 alarm



Clearing a VCX090 alarm

At the MAP terminal

- 1 Access the PM level of the MAP screen by typing
>MAPCI ; MTC ; PM
 and pressing the Enter key.

Example of a MAP screen:

PM 1SPM VCXO90 SPM**major (continued)**

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2** Display all the inservie-trouble (ISTb) SPMs by typing

>DISP STATE ISTb SPM

and pressing the Enter key.

- 3** Record the number of the SPMs.

- 4** Post each ISTb SPM by typing

>POST SPM spm_no

and pressing the Enter key.

where

spm_no

is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	2	0

SPM 11 **ISTb** Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat
-----	1	-	----	CEM 1	8	I	SysB	-----	1	-	----	-----	8	-	----
-----	2	-	----	OC3 0	9	A	----	-----	2	-	----	-----	9	-	----
DSP 3	3	I	OffL	OC3 1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	4	-	----	-----	11	-	----
-----	5	-	----	DSP12	12	A	----	-----	5	-	----	-----	12	-	----
-----	6	-	----	DSP13	13	A	----	-----	6	-	----	-----	13	-	----
CEM 0	7	A	ISTb	-----	14	A	----	-----	7	-	----	-----	14	-	----

- 5** Select the ISTb CEM by typing

>SELECT CEM cem_no

and pressing the Enter key.

where

cem_no

is the number of the CEM (0 or 1)

Example of a MAP screen:

PM 1SPM VCX090 SPM major (continued)

SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLOAD

Clock:

Input Ref: Source: Current Mode:

- 6 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

Example of a MAP screen:

SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7

Default Load: SPMLOAD

Clock:

Input Ref: Source: Current Mode:

ListAlm

ListAlm: SPM 11 CEM 0

SEVERITY	ALARM	ACTION
Critical	None	
Major	None	
Minor	VCX090	RPT
No_Alarm	None	

- 7 Determine whether there are any other CEM alarms.

If there are	Do
no other CEM alarms	step 10
other CEM alarms	step 8

- 8 Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step

- 9 List the alarms on the CEM by typing

>LISTALM

PM 1SPM VCX090 SPM major (end)

and pressing the Enter key.

If the alarm list shows	Do
None	step 13
VCX090	step 10

- 10** Replace the CEM module. For detailed instructions, see "SPM NTLX63AA CEM card" in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 11** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

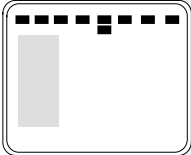
If the alarm list shows	Do
None	step 13
VCX090	step 12

- 12** For further assistance, contact the personnel responsible for the next level of support.

- 13** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

**PM APU
critical****Alarm display**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1APU *C*	.	.	.	.	.

Indication

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a critical alarm for an application processor unit (APU).

Meaning

One or more APUs are system busy, system busy not available, or in-service trouble not available.

Result

System busy APUs reduce the service provided by an application. An example of a service is Automated Directory Assistance Service (ADAS) or DMS-100 Mail.

The number under the PM header in the alarm banner indicates the number of affected APUs.

Common procedures

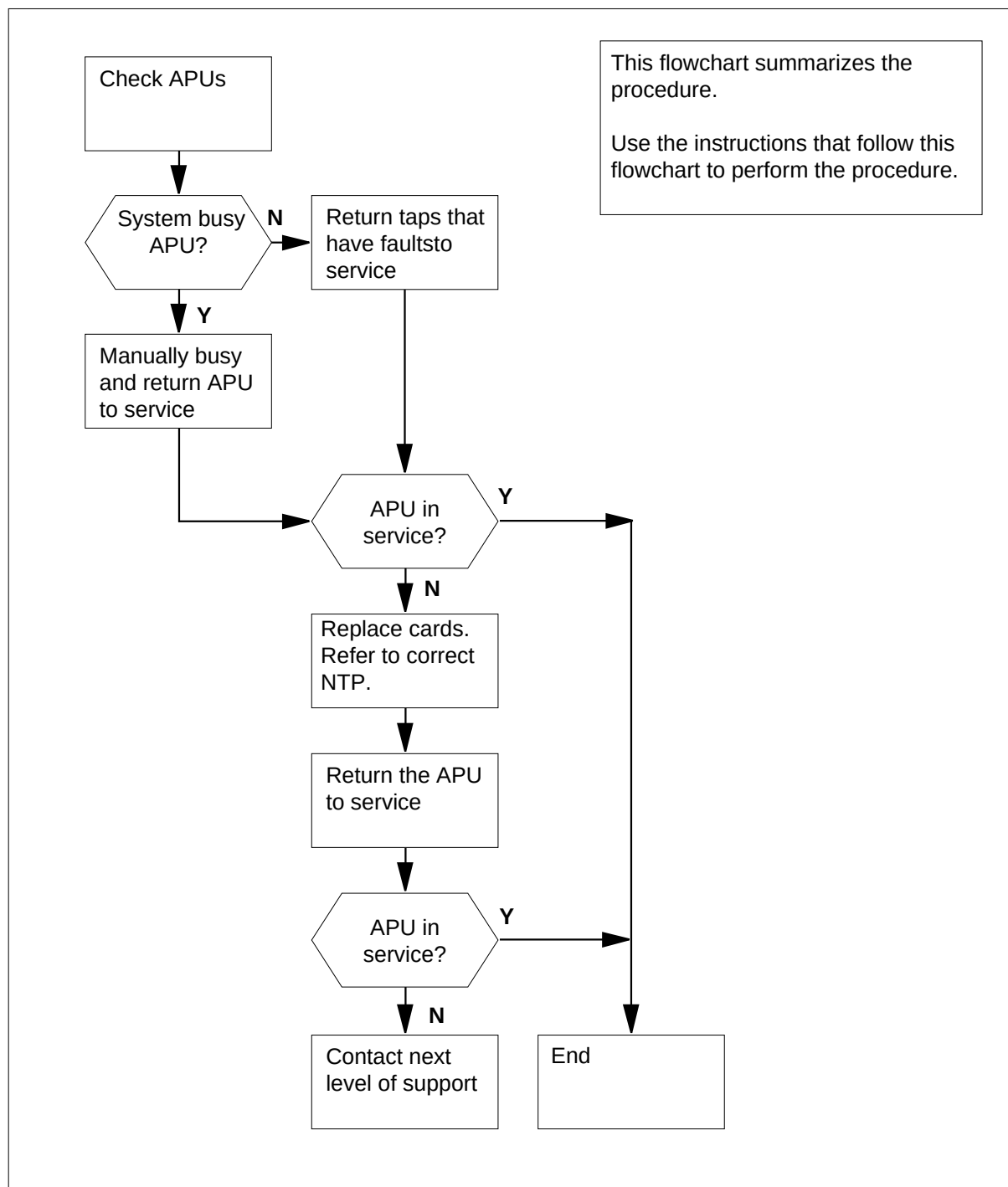
There are no common procedures.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM APU critical (continued)

Summary of How to clear a PM APU critical alarm



PM APU critical (continued)

How to clear a PM APU critical alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 To display all system busy APUs, type

>DISP STATE SYSB APU

and press the Enter key.

- 3 Determine if any system busy APUs are present.

If system busy APUs	Do
are present	step 4
are not present	step 26

- 4 Record the number of the APUs.

- 5 To post the system busy APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

Example of a MAP display:

APU 1 SysB

- 6 Determine the state of the posted APU.

If the posted APU	Do
is SysB (NA)	step 31
is SysB	step 7

PM APU**critical** (continued)

- 7 The APU has a problem. Wait 15 min while the system attempts to clear the fault.
- | If the state of the APU | Do |
|---------------------------|----------|
| changes from SysB to InSv | step 111 |
| does not change | step 8 |
- 8 To force the APU to busy, type
>BSY FORCE
and press the Enter key.
- 9 To test the APU, type
>TST
and press the Enter key.
- | If the TST command | Do |
|---|---------|
| passed | step 16 |
| failed, and the system did not generate a card list | step 10 |
| failed, and the system generated a card list | step 11 |
- 10 To reset the APU, type
>PMRESET
and press the Enter key.
- | If the PMRESET command | Do |
|---|---------|
| passed | step 16 |
| failed, and the system did not generate a card list | step 15 |
| failed, and the system generated a card list | step 11 |
- 11 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 12 To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

PM APU critical (continued)

At the MAP display

- 13** To manually busy the APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

If the BSY command	Do
passed	step 14
failed	step 110

- 14** To reset the APU, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 16
failed	step 15

- 15** To load the APU, type

>LOADPM

and press the Enter key.

If the LOADPM command	Do
passed	step 16
failed, and the system did not generate a card list	step 17
failed, and the system generated a card list	step 91

- 16** To return the APU to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 111

PM APU**critical** (continued)

	If the RTS command	Do
	failed	step 91
17	Record the location, description, slot number, product engineer code (PEC), and PEC suffix of the cards on the list.	
18	To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
At the MAP display		
19	To manually busy the APU, type >BSY APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU (0 to 511)	
20	To reset the APU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 25
	failed	step 21
21	To load the APU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 25
	failed, and you did not replace all cards on the list that you recorded in step 17	step 22
	failed, and you replaced all cards on the list that you recorded in step 17	step 91
22	To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	

PM APU critical (continued)

At the MAP display

- 23** To manually busy the APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

- 24** Go to step 20.

- 25** To return the APU to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 111
failed	step 91

- 26** An in-service trouble not available APU can generate the alarm. To post the in-service trouble APUs, type

>POST APU ISTB

and press the Enter key.

Example of a MAP display:

APU 1 ISTb (NA)

If the posted APU	Do
is ISTb (NA)	step 30
is ISTb	step 27

- 27** To scroll to the next in-service trouble APU in the posted set, type

>NEXT

and press the Enter key.

- 28** Determine if the posted APU is in-service trouble not available.

If the posted APU	Do
is ISTb (NA)	step 30
is ISTb	step 29

PM APU

critical (continued)

- 29** Determine if you reached the end of the posted set.

If you	Do
did not reach the end of the posted set	step 27
reached the end of the posted set	step 110

- 30** To determine the LIM for the in-service trouble not available APU, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

```
PM type: APU PM No.: 1 Status: ISTb (NA)
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000
Default load: ULX36BX
Running load: ULX36CD
ISTb conditions:
    Msg Channel #0 NA
    Msg Channel #1 NA
    TAP #0 OOS/NA
    TAP #1 OOS/NA
LMS States      : InSv      InSv
Auditing        : No        No
Msg Channels    : NA        NA
TAP 2           : S(NA)      M(NA)
```

Go to step 32.

- 31** To determine the LIM for the system busy not available APU, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

PM APU

critical (continued)

```

PM type: APU PM No.: 0 Status: Sysb (NA)
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000
Default load: ULX36CD
Running load: ULX36CD
Potential service affecting conditions:
  MSG Channel #0 NA
  MSG Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States:      InSv      InSv
Auditing:        No        No
Msg Channels:    NA        NA
TAP1:            S(NA)     M(NA)

```

- 32** Record the number of the APU and the number of the LIM for the APU.
Record the number of the F-bus tap.

Note: The APU number appears on the right of the APU header. The LIM number appears on the right of the LIM header.

- 33** To post the LIM for the APU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP:

```

LIM 1 InSv
           Links_00S   Taps_00S
Unit0: InSv      .         1
Unit1: InSv      .         1

```

- 34** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP:

```

           Tap:    0      4      8      12     16     20
FBus0: InSv      .-S-  .--  .--  .--  I.--  .--
FBus1: InSv      .-S-  .--  .--  .--  I.--  .--

```

PM APU
critical (continued)

- 35** Determine the state of the LIM units and both F-buses (0 and 1).
Note: Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.
- | If the state of the LIM and both F-buses | Do |
|---|-----------|
| is <i>InSv</i> | step 38 |
| is other than listed here | step 36 |
- 36** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.
- 37** Determine if the APU critical alarm cleared.
- | If the APU critical alarm | Do |
|----------------------------------|-----------|
| cleared | step 111 |
| did not clear | step 1 |
- 38** Determine the state of the F-bus taps for the APU.
Note: The tap number that you recorded in step 32 applies to both F-buses.
- | If | Do |
|---|-----------|
| both F-bus taps are M | step 41 |
| both F-bus taps are S | step 40 |
| one F-bus tap is M and the other F-bus tap is S | step 39 |
- 39** Work on the manually-busy F-bus tap first.
Go to step 42.
- 40** To force the F-bus tap for the APU to busy, type
>BSY FBUS fbus_no_tap_no FORCE
and press the Enter key.
where
fbus_no
is the number of the F bus (0 or 1)
tap_no
is the number of the tap (0 to 35)
Go to step 43.
- 41** Select one of the manually-busy taps on the F-bus 0 or 1 on which to work.

PM APU critical (continued)

- 42** Determine from office records or operating company personnel why the tap is manually-busy.

When you have permission, continue this procedure.

- 43** To return the F-bus tap for the APU to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F bus (0 or 1)

tap_no

is the number of the tap (0 to 35)

If the RTS command	Do
passed	step 79
failed, and the system generated a card list, and both APU taps are out of service	step 44
failed, and the system did not generate a card list	step 79
failed, with the response Return to service failed - local maintenance not accessible	step 79

- 44** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

- 45** Determine the state of the F-bus taps for the APU.

If	Do
both APU taps are M	step 46
a minimum of one tap is S	step 67

- 46** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 47** To manually busy the offline APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

PM APU**critical** (continued)

- 48** To post the LIM associated with the APU, type
>POST LIM lim_no
and press the Enter key.
where
lim_no
is the number of the LIM (0 to 16)
- 49** To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.
- 50** To return the first F-bus tap for the APU to service, type
>RTS FBUS fbus_no_tap_no
and press the Enter key.
where
fbus_no
is the number of the F bus (0 or 1)
tap_no
is the number of the F bus tap (0 to 35)

If the RTS command	Do
passed	step 56
failed, and you did not replace all cards on the list	step 51
failed, and you replaced all cards on the list	step 91

- 51** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 52** To manually busy the offline APU, type
>BSY APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU (0 to 511)
- 53** To post the LIM for the APU, type
>POST LIM lim_no
and press the Enter key.

PM APU critical (continued)

where

lim_no

is the number of the LIM (0 to 16)

- 54 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

- 55 Go to step 50.

- 56 To return the second F-bus tap for the APU to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F bus (0 or 1)

tap_no

is the number of the F bus tap (0 to 35)

If the RTS command	Do
passed	step 57
failed	step 57

- 57 To quit from the F-bus level of the MAP display, type

>QUIT

and press the Enter key.

- 58 To post the APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

- 59 To reset the APU, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 64
failed	step 60

PM APU
critical (continued)

- 60** To load the APU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 64
failed, and the system generated a card list	step 61
failed, and you did not replace all cards on the list	step 65
failed, and you replaced all cards on the list	step 91

- 61** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.
- 62** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 63** To manually busy the offline APU, type
>BSY APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU (0 to 511)
Go to step 59.

- 64** To return the APU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 111
failed	step 110

- 65** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 66** To manually busy the offline APU, type
>BSY APU apu_no

PM APU critical (continued)

and press the Enter key.

where

apu_no
is the number of the APU (0 to 511)

Go to step 59.

- 67** To quit from the F-bus level of the MAP display, type

>QUIT

and press the Enter key.

- 68** To post the APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no
is the number of the APU (0 to 511)

- 69** To manually busy the APU, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 71
failed	step 70

- 70** To force the APU to busy, type

>BSYFORCE

and press the Enter key.

- 71** To replace the first card on the list that you recorded in step 44, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 72** To manually busy the APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no
is the number of the APU (0 to 511)

If the BSY command	Do
passed	step 73

PM APU**critical** (continued)

	If the BSY command	Do
	failed	step 110
73	To reset the APU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 78
	failed	step 74
74	To load the APU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 78
	failed, and you did not replace all cards on the list that you recorded in step 44	step 75
	failed, and you replaced all cards on the list that you recorded at step 44	step 91
75	To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
At the MAP display		
76	To manually busy the offline APU, type >BSY APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU (0 to 511)	
77	Go to step 73.	
78	To return the APU to service, type >RTS	

PM APU
critical (continued)

and press the Enter key.

	If the RTS command	Do
	passed	step 111
	failed	step 91
79	Determine if you worked on the other APU tap.	
	If you	Do
	worked on the other APU tap	step 88
	did not work on the other APU tap	step 80
80	Determine the state of the second APU tap.	
	If the state of the second APU tap	Do
	is M	step 82
	is S	step 81
81	To force one of the system busy taps for the APU to busy, type >BSY FBUS fbus_no tap_no FORCE and press the Enter key. <i>where</i> fbus_no is the number of the F bus (0 or 1) tap_no is the number of the F bus tap (0 to 35) Go to step 82.	
82	To return the F-bus tap for the APU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. <i>where</i> fbus_no is the number of the F bus (0 or 1)	

PM APU critical (continued)

tap_no is the number of the F bus tap (0 to 35)	
If the RTS command	Do
passed	step 83
failed, and the system generated a card list	step 44
failed, and the system did not generate a card list	step 91
failed, with the response Return to service failed - local maintenance not accessible	step 91
83 Determine if one APU critical alarm cleared.	
If one APU critical alarm	Do
cleared	step 111
did not clear and you are working on an ISTb (NA) APU	step 88
cleared and you are working on a SysB (NA) APU	step 84
84 To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
85 To post the system busy not available APU, type >POST APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU (0 to 511)	
86 Determine the state of the APU.	
If the state of the APU	Do
changed from SysB (NA) to SysB	step 87
did not change	step 90
87 You are working on system busy APU. Go to step 8.	

PM APU
critical (continued)

- 88** To quit from the F-bus level of the MAP display, type
>QUIT
and press the Enter key.
- 89** To post the APU, type
>POST APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU (0 to 511)
- 90** To force the APU to manually busy, type
>BSY FORCE
and press the Enter key.
- 91** Determine if you already unseated and reseated the NTEX22 and NT9X14 APU cards during this procedure.
- | If you | Do |
|---|----------|
| unseated and reseated the two APU cards in this procedure | step 110 |
| did not unseat and reseat the two APU cards in this procedure | step 92 |
- 92** To offline the APU, type
>OFFL
and press the Enter key.
- 93** To determine the location of the offline APU, type
>QUERYPM
and press the Enter key.
- Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the APU card pair.
- Example of a MAP response:*
- PM type: APU PM No.: 0 Status: OffL
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000

PM APU

critical (continued)

At the LPP

94



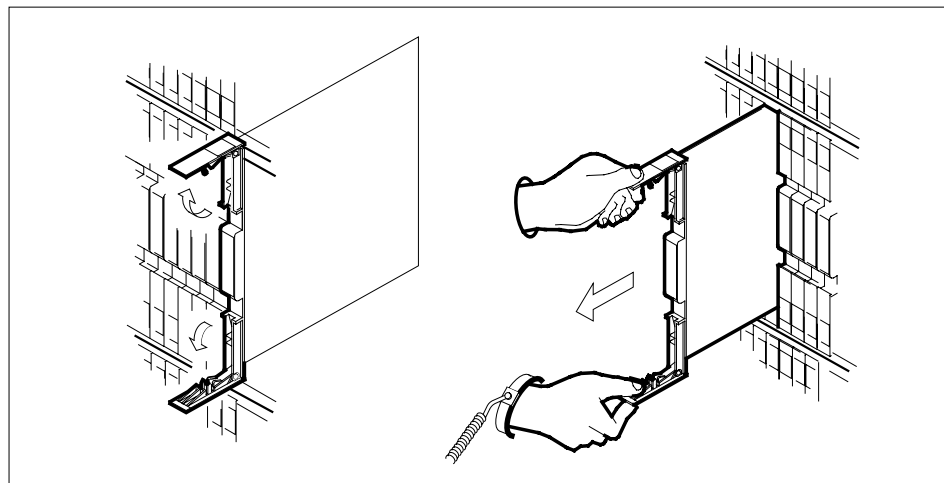
WARNING

Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

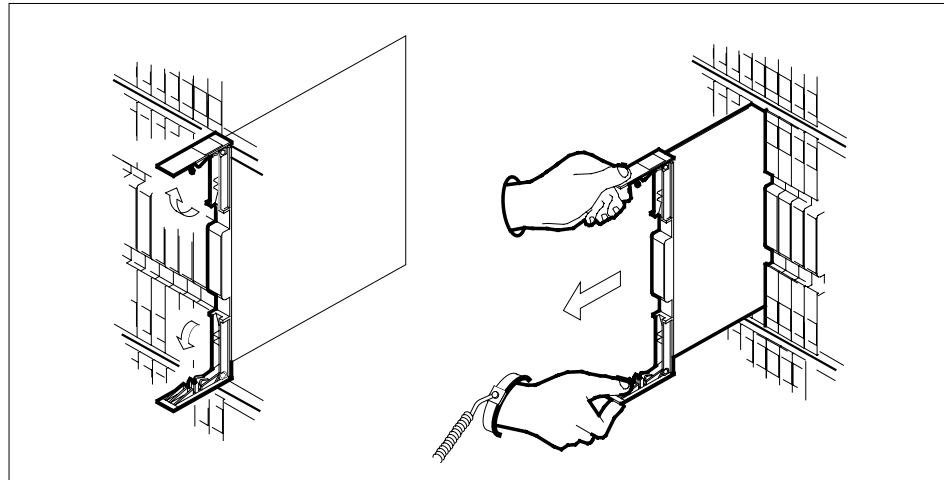
Locate the NT9X14 card for the APU.

- 95 Open the locking levers on the card. Carefully pull the NT9X14 card toward you until you remove the card from the connector.

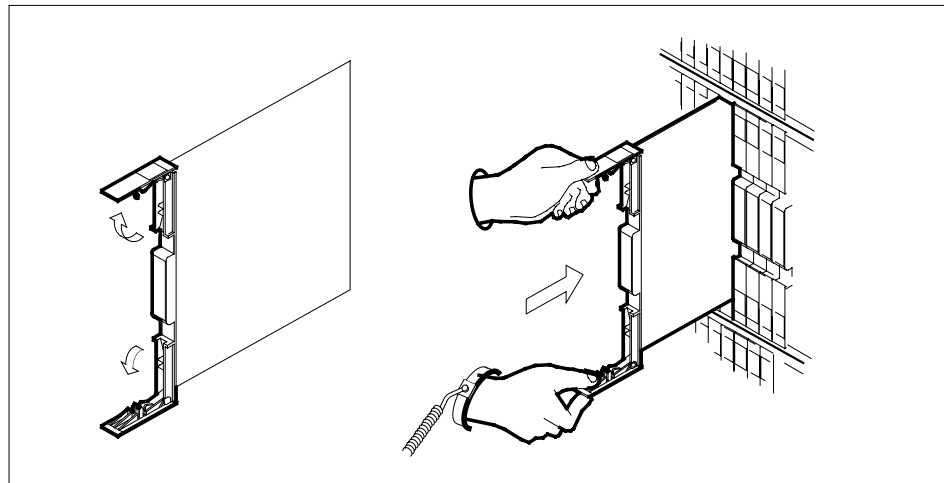


- 96 Leave the NT9X14 card in the slot on the link interface shelf (LIS).
- 97 Locate the NTEX22 card for the APU.
- 98 Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.

PM APU
critical (continued)

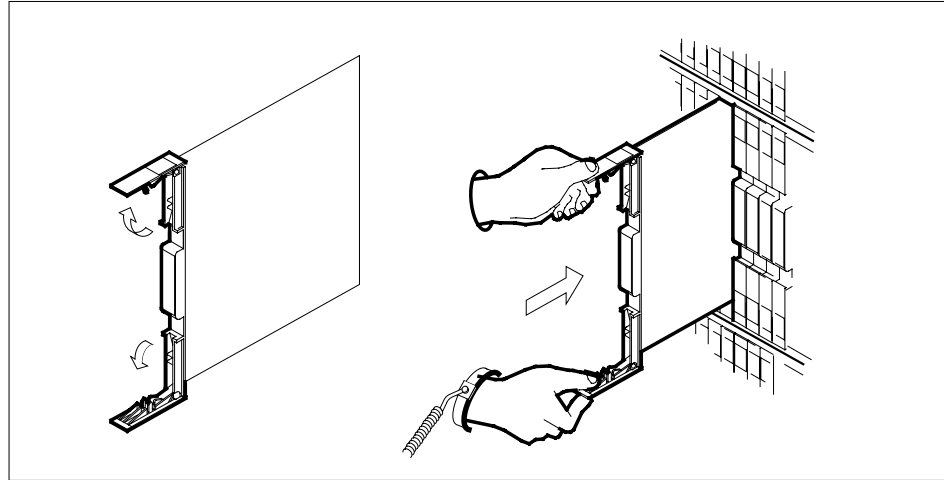


- 99** Carefully slide the NTEX22 card back into the LIS.



- 100** Seat and lock the NTEX22 card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
 - Close the locking levers.
- 101** Carefully slide the NT9X14 card back into the LIS.

PM APU critical (continued)



102 Seat and lock the NT9X14 card as follows:

- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

At the MAP display

103 To manually busy the APU, type

>BUSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

104 To set the APU again, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 106
failed	step 105

105 To load the APU, type

>LOADPM

PM APU
critical (end)

and press the Enter key.

If the LOADPM command	Do
passed	step 106
failed	step 110

- 106** To return the APU to service, type
>RTS
 and press the Enter key.

If the RTS command	Do
passed	step 111
failed, and the system did not generate a card list	step 110
failed, and the system generated a card list	step 107
failed, the system generated a card list, and you re-placed cards in the APU	step 110

- 107** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

- 108** To post the LIM for the APU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

- 109** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

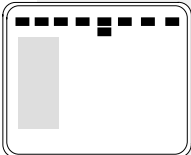
Go to step 44.

- 110** For additional help, contact the next level of support.

- 111** The procedure is complete.

PM APU
major

Alarm display

	CM	MS	IOD	Net	PM 1APU *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.		.	.	.	.	.

Indication

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a major alarm for the application processor unit (APU).

Meaning

One or more APUs are manually-busy or manually-busy not available.

Result

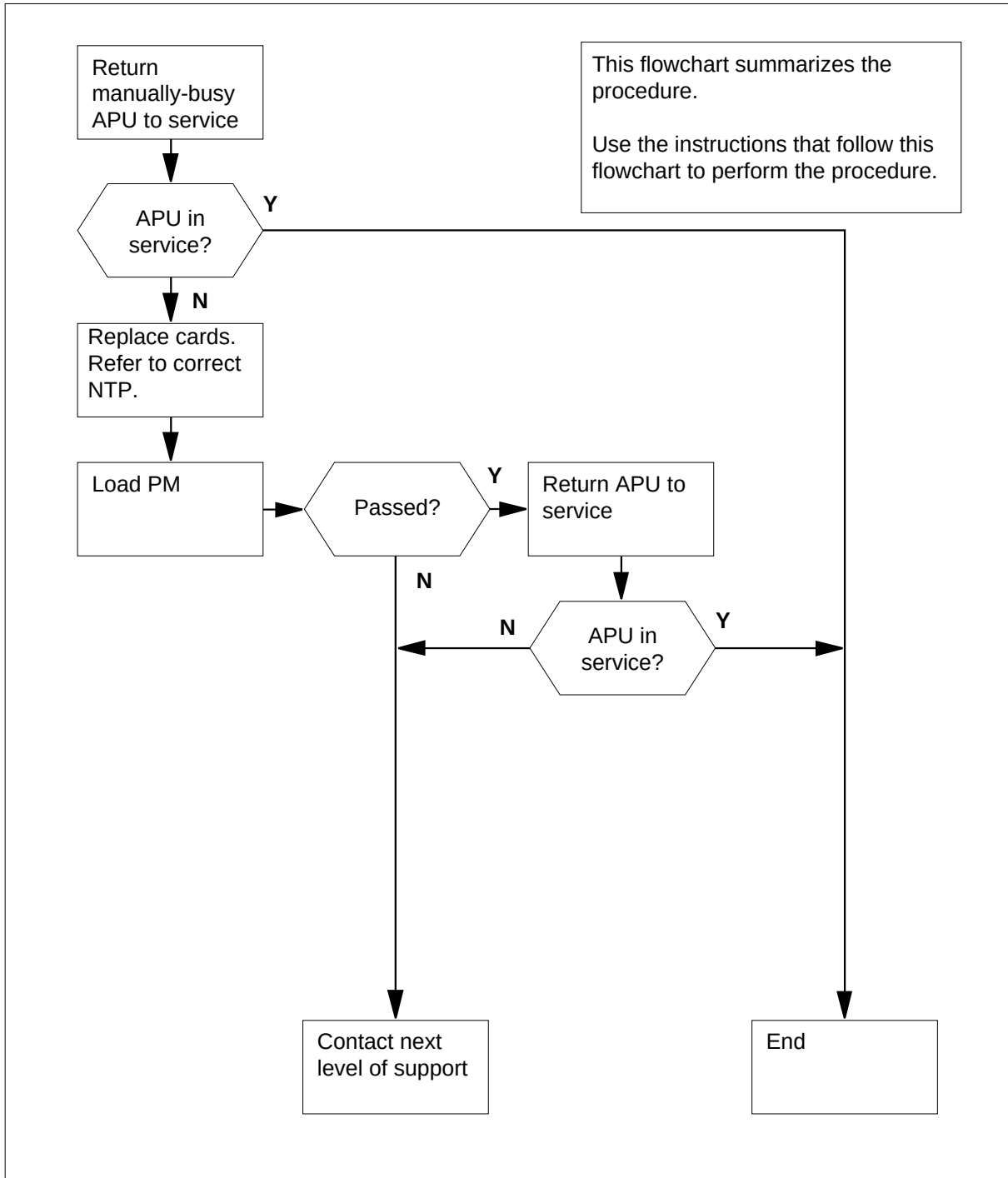
Manually-busy APUs reduce the service provided by an application. An example of a service is Automated Directory Assistance Service (ADAS) or DMS-100 Mail.

Common procedures

There are no common procedures.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

**PM APU
major** (continued)**Summary of clearing a PM APU major alarm**

PM APU

major (continued)

Clearing a PM APU major alarm

At the MAP terminal

- 1** To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBSy	ISTb	InSv
PM	1	1	1	3	2	12

- 2** To display all manually-busy APUs, type

>DISP STATE MANB APU

and press the Enter key.

- 3** Record the manually-busy APUs.

- 4** To post a manually-busy APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU that you recorded in step 3

Example of a MAP display:

APU 1 ManB

- 5** Determine the state of the posted APU.

If the posted APU	Do
is ManB (NA)	step 19
is ManB	step 6

- 6** Determine from office records or from operating company personnel why the APU is manually-busy.

When you have permission, continue this procedure.

- 7** To test the posted APU, type

>TST

PM APU major (continued)

and press the Enter key.

If the TST command	Do
passed	step 10
failed, and the system generated a card list	step 11
failed, and the system did not generate a card list	step 8

- 8** To reset the APU, type
>PMRESET
and press the Enter key.

If the PMRESET command	Do
passed	step 10
failed, and the system generated a card list	step 11
failed, and the system did not generate a card list	step 9

- 9** To load the APU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 10
failed, and the system generated a card list	step 11
failed, and the system did not generate a card list	step 71

- 10** To return the APU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 86

PM APU major (continued)

	If the RTS command	Do
	failed, and the system generated a card list	step 11
	failed, and the system did not generate a card list	step 71
11	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	
12	To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	

At the MAP display

- 13** To manually busy the offline APU, type
>BSY
and press the Enter key.

	If the BSY command	Do
	passed	step 14
	failed, and the system generated a card list	step 85
14	To reset the APU, type >PMRESET and press the Enter key.	

	If the PMRESET command	Do
	passed	step 18
	failed, and the system generated a card list	step 15
15	To load the APU, type >LOADPM and press the Enter key.	

	If the LOADPM command	Do
	passed	step 18
	failed, and you did not replace all cards on the list that you recorded at step 11	step 16

PM APU major (continued)

	If the LOADPM command	Do
	failed, and you replaced all cards on the list that you recorded at step 11	step 71
	failed, and the system did not generate a card list	step 71
16	To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
17	Go to step 13.	
18	To return the APU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 86
	failed, and you did not replace all cards on the list that you recorded in step 11	step 16
	failed, and you replaced all cards on the list that you recorded in step 11	step 71
19	To determine the link interface module (LIM) for the manually-busy APU that is not available, type >QUERYPM and press the Enter key. <i>Example of a MAP response:</i> PM type:APU PM No.:1 Status: ManB(NA) LIM: 1 Shelf:3 Slot: 8 APU FTA:424E 1000 Default Load: LCC36BX Running Load: LCC36BX Potential service affecting conditions: Msg Channel #0 NA Msg Channel #1 NA TAP #0 OOS/NA TAP #1 OOS/NA LMS States: InSv InSv Auditing : No No Msg Channels: NA NA TAP 2 : S(NA) M(NA)	

PM APU major (continued)

- 20** Record the number of the APU, the number of the LIM, and the number of the tap.

Note: The APU number appears on the right of the APU header. The LIM number appears on the right of the word LIM in the MAP response. The tap number appears on the right of the TAP header.

- 21** To post the LIM for the APU that you recorded in step 20, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 17)

Example of a MAP response:

```
LIM 1 InSv
          Links_00S   Taps_00S
Unit0: InSv      .           1
Unit1: InSv      .           1
          Tap:    0      4      8      12      16      20
FBus0: InSv      .-M-   .I.I   .I.I   .I.I   ..-.   .--.
FBus1: InSv      .-M-   .I.I   .I.I   .I.I   ..-.   .--.
```

- 22** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

- 23** Determine the state of the LIM units and both F-buses (0 and 1).

Note: Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.

If the state of the LIM and both F-buses	Do
is InSv	step 26
is not InSv	step 24

- 24** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.

- 25** Determine if the APU major alarm cleared.

If the APU major alarm	Do
cleared	step 86
did not clear	step 1

PM APU major (continued)

- 26** Determine the state of the F-bus taps for with the APU.
Note: The tap number that you recorded in step 20 applies to both F-bus 0 and F-bus 1.
- | If | Do |
|---|---------|
| both F-bus taps are M | step 31 |
| both F-bus taps are S | step 27 |
| one F-bus tap is M and the other F-bus tap is S | step 30 |
- 27** To quit from the F-bus level of the MAP display, type
>QUIT
 and press the Enter key.
- 28** To post the APU, type
>POST APU apu_no
 and press the Enter key.
where
 apu_no
 is the number of the APU (0 to 511)
- 29** To return the APU to service, type
>RTS
 and press the Enter key.
- | If the RTS command | Do |
|---|---------|
| passed | step 86 |
| failed, and the system generated a card list | step 34 |
| failed, and the system did not generate a card list | step 70 |
- 30** Work on the manually-busy F-bus tap first.
 Go to step 32.
- 31** Select one of the manually-busy taps on either F-bus on which to work.
- 32** Determine from office records or from operating company personnel why the tap is manually-busy.
 Continue this procedure as permitted.

PM APU major (continued)

- 33** To return the F-bus tap for the APU to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 62
failed, and the system generated a card list, and both APU taps are out of service	step 34
failed, and the system did not generate a card list	step 62
failed, with the response Return to Service failed - local maintenance not accessible	step 62

- 34** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 35** Determine the state of the F-bus taps for the APU.

If	Do
both taps are M	step 36
a minimum of one tap is in service (.)	step 53
a minimum of one tap is S	step 53

- 36** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 37** To manually busy the offline APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

- 38** To post the LIM for the APU, type

>POST LIM lim_no

PM APU major (continued)

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 17)

- 39** To access the F-bus level of the MAP display, type
>FBUS

and press the Enter key.

- 40** To return the F-bus tap for the APU to service, type
>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 45
failed, and the system generated a card list	step 41
failed, and the system did not generate a card list	step 70

- 41** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 42** To manually busy the offline APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

If the BSY command	Do
passed	step 43
failed	step 85

- 43** To post the LIM for the APU, type

>POST LIM lim_no

PM APU major (continued)

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 17)

- 44** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Go to step 40.

- 45** To return the other F-bus tap for the APU, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 46
failed	step 70

- 46** To quit from the F-bus level, type

>QUIT

and press the Enter key.

- 47** To post the APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

- 48** To reset the APU, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 52
failed	step 49

PM APU major (continued)

- 49** To load the APU, type
>LOADPM
and press the Enter key.
- | If the LOADPM command | Do |
|---|---------|
| passed | step 52 |
| failed, and you did not replace all cards on the list | step 50 |
| failed, and you replaced all cards on the list | step 70 |
- 50** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 51** To manually busy the offline APU, type
>BSY APU apu_no
and press the Enter key.
where
 apu_no
 is the number of the APU (0 to 511)
- | If the BSY command | Do |
|---------------------------|---------|
| passed | step 48 |
| failed | step 85 |
- 52** To return the APU to service, type
>RTS
and press the Enter key.
- | If the RTS command | Do |
|---------------------------|---------|
| passed | step 86 |
| failed | step 70 |
- 53** To quit the F-bus level, type
>QUIT
and press the Enter key.
- 54** To post the APU, type
>POST APU apu_no
and press the Enter key.

PM APU major (continued)

where

apu_no

is the number of the APU (0 to 511)

55 To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

56 To manually busy the offline APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

If the BSY command	Do
passed	step 57
failed	step 85

57 To reset the APU, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 61
failed	step 58

58 To load the APU, type

>LOADPM

and press the Enter key.

If the LOADPM command	Do
passed	step 61
failed, and you did not replace all cards on the list	step 59
failed, and you replaced all cards on the list	step 70

59 To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

60 To manually busy the offline APU, type

>BSY APU apu_no

PM APU major (continued)

and press the Enter key.

where

apu_no
is the number of the APU (0 to 511)

		If the BSY command	Do
		passed	step 57
		failed	step 85
61	To return the APU to service, type >RTS and press the Enter key.		
		If the RTS command	Do
		passed	step 85
		failed	step 70
62	Determine the state of the second APU tap.		
		If the state of the second APU tap	Do
		is M	step 64
		is S	step 63
63	To manually busy the F-bus tap for the APU, type >RTS FBUS fbus_no tap_no and press the Enter key. where fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35)		
		If the RTS command	Do
		passed, and the other tap is out of service	step 64
		passed, and the other tap is in service	step 64
		failed, both taps are out of service, and the system generated a card list	step 34

PM APU major (continued)

	If the RTS command	Do
	failed, the other tap is in service, and the system generated a card list	step 64
	failed, and the system did not generated a card list	step 70
	failed with the response <code>Service failed - local maintenance not accessible.</code>	step 70
64	To quit the F-bus level, type >QUIT and press the Enter key.	
65	To post the APU, type >POST APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU (0 to 511)	
66	To return the APU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 85
	failed, and the system generated a card list	step 67
	failed, and the system did not generate a card list	step 70
67	Record the location, description, slot number, product engineering code (PEC), PEC suffix of the cards on the list.	
68	To post the LIM for the APU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 17)	
69	To access the F-bus level of the MAP display, type >FBUS	

PM APU major (continued)

and press the Enter key.

Go to step 35.

- 70** Determine if you already unseated and reseated the NTEX22 and NT9X14 APU cards during this procedure.

If you	Do
unseated and reseated the two APU cards	step 85
have not unseated and reseated the two APU cards	step 71

- 71** To offline the APU, type

>OFFL

and press the Enter key.

- 72** To determine the location of the APU, type

>QUERYPM

and press the Enter key.

Note: The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the APU.

At the LPP

73



WARNING

Static electricity damage

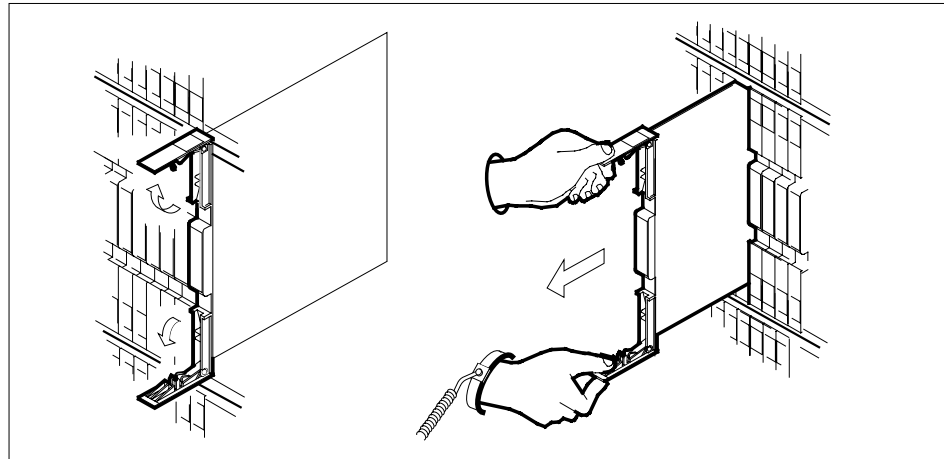
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X14 card for the APU.

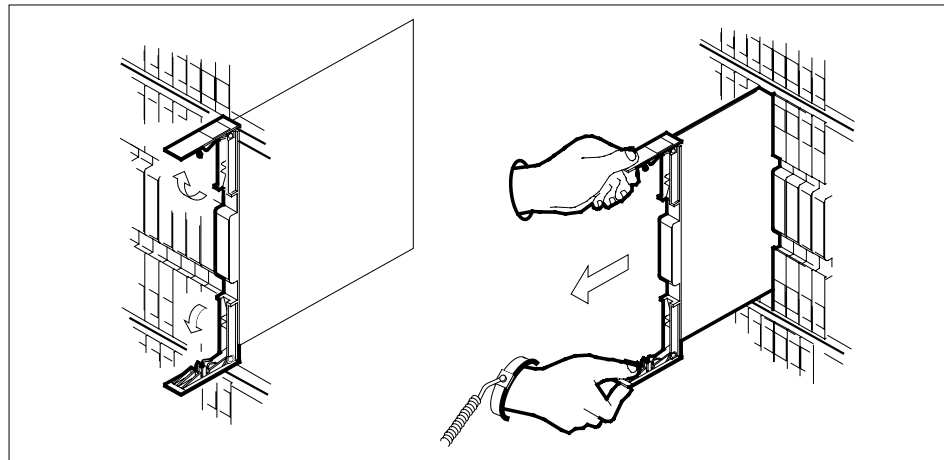
- 74** Open the locking levers on the card. Carefully pull the NT9X14 card toward you; unseat the card from the connector.

PM APU

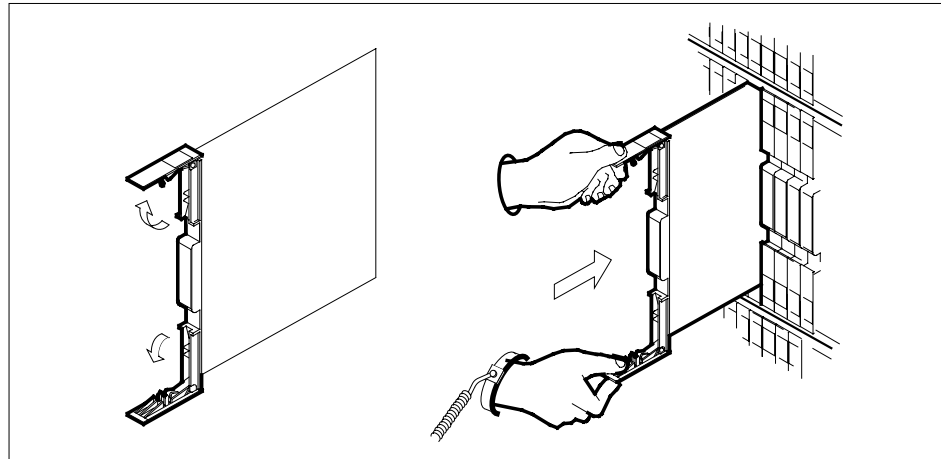
major (continued)



- 75 Leave the NT9X14 card in the slot on the link interface shelf (LIS).
- 76 Locate the NTEX22 card for the APU.
- 77 Open the locking levers on the card. Carefully pull the NTEX22 card toward you; unseat the card from the connector.



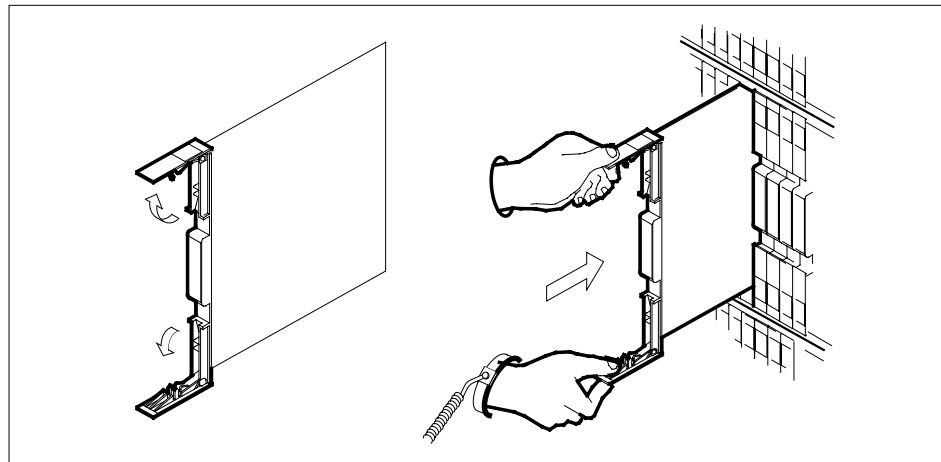
- 78 Carefully slide the NTEX22 card back into the LIS.

PM APU
major (continued)

79 Seat and lock the NTEX22 card as follows:

- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

80 Carefully slide the NT9X14 card back into the LIS.



81 Seat and lock the NT9X14 card as follows:

- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

PM APU
major (end)

At the MAP display

82 To manually busy the offline APU, type

>BSY APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

If the BSY command	Do
passed	step 83
failed	step 85

83 To load the APU, type

>LOADPM

and press the Enter key.

If the LOADPM command	Do
passed	step 84
failed, and the system did not generate a card list	step 85
failed, and the system generated a card list	step 34
failed, the system generated a card list, and you re-placed cards in the APU	step 85

84 To return the APU to service, type

>RTS

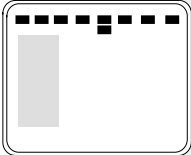
and press the Enter key.

If the RTS command	Do
passed	step 86
failed, and the system did not generate a card list	step 85
failed, and the system generated a card list	step 34
failed, and the system generated a card list, and you replaced cards in the APU	step 85

85 For additional help, contact the next level of support.

86 The procedure is complete.

**PM APU
minor****Alarm display**

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1APU	.	.	.	.	.

Indication

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a minor alarm for the application processor unit (APU).

Meaning

One or more APUs are in-service trouble. One of the F-bus taps for the APU can be manually busy or system busy. The APU also can have a loadname mismatch.

The number under the PM header of the alarm banner indicated the number of the affected APUs.

Result

APUs that are in-service trouble continue to function. The in-service trouble APUs function at a reduced capacity.

Common procedures

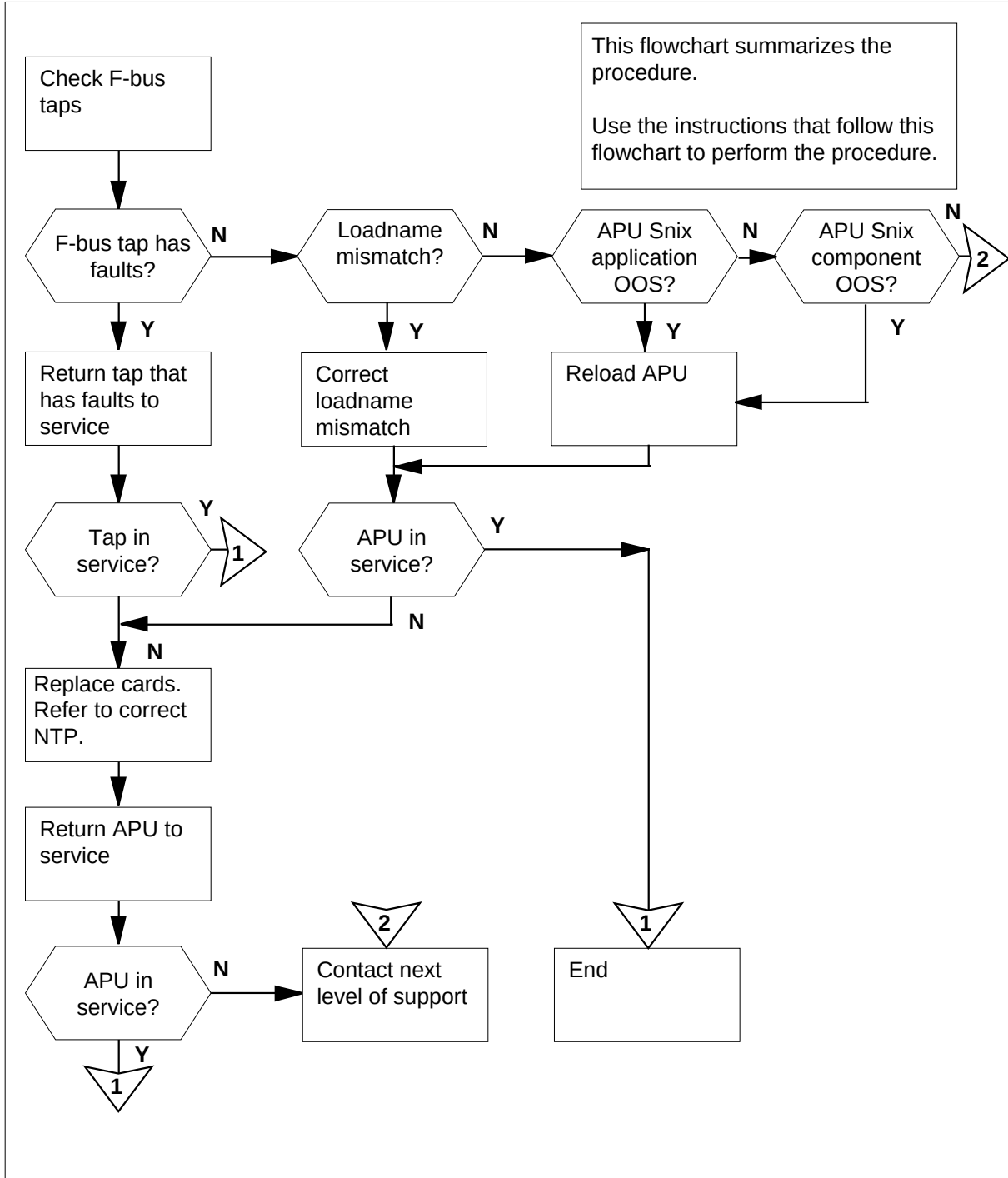
There are no common procedures.

Action

This procedure contains a summary flowchart and list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM APU minor (continued)

Summary of clearing a PM APU minor alarm



PM APU minor (continued)

Clearing a PM APU minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	0	0	0	2	49

- 2 To display all system busy APUs, type

>DISP STATE ISTB APU

and press the Enter key.

- 3 Record the numbers of the in-service trouble APUs.

- 4 To post an in-service trouble APU, type

>POST APU apu_no

and press the Enter key.

where

apu_no

is the number of the APU (0 to 511)

Example of a MAP display:

APU 1 ISTb

- 5 To display the faults that cause the in-service trouble condition, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

```
PM type:APU PM No.:1    Status: ISTb
LIM: 1 Shelf:2 Slot: 12    APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
ISTB conditions:
  APU Snix application out-of-service
LMS States  :    ISTb    ISTB
Auditing    :    Yes    Yes
Msg Channels:    Acc    Acc
TAP 2       :    .      .
```

PM APU

minor (continued)

- 6** Record the APU number, the tap number, and the state of the tap. Record the link interface module (LIM) number of the posted APU.
- Note:** In the example in step 5, the APU number is 1, the LIM number is 1, and the tap number is 2.
- 7** To determine the faults, look under the ISTB conditions header on the MAP response.

If the header indicates	Do
one of the F-bus taps is out of service (shown as Tap # nOOS or Tap # n OOS/NA)	step 10
Loadname Mismatch	step 67
APU Snix application out-of-service	step 8
APU Snix component out-of-service	step 9
other than listed here	step 117

- 8** The APU Snix application is out of service. Wait 15 min while the system attempts to clear the fault.

If the state of the APU	Do
changes from ISTb to InSv	step 118
does not change	step 79

- 9** The APU Snix component is out of service. Wait 5 min while the system attempts to clear the fault.

If the state of the APU	Do
changes from ISTb to InSv	step 118
does not change	step 79

- 10** Record the number of the F-bus that contains the APU tap that is out of service.

Note: The F-bus number appears on the right of the TAP # header.

- 11** To post the LIM for the APU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 17) that you recorded in step 6

Example of a MAP display:

PM APU

minor (continued)

- 17 Determine from office records or operating company personnel why the F-bus tap is manually busy.

If you	Do
can return the F-bus tap to service	step 19
cannot return the F-bus tap to service	step 118

- 18 To force the system busy F-bus tap for the APU to busy, type
>BSY FBUS fbus_no tap_no FORCE
 and press the Enter key.

where

fbus_no
 is the number of the F-bus (0 or 1)

tap_no
 is the number of the F-bus tap (0 to 35)

Example of a MAP response:

```
LIM 1 FBUS 0 Tap 0 Busy initiated.
LIM 1 FBUS 0 Tap 0 Busy passed
```

- 19 To test the F-bus tap for the APU, type
>TST FBUS fbus_no tap_no
 and press the Enter key.

where

fbus_no
 is the number of the F-bus (0 or 1)

tap_no
 is the number of the F-bus tap (0 to 35)

If the TST command	Do
passed	step 45
failed, and the system generated a card list	step 46
failed, and the system did not generate a card list	step 91
failed, with the response <i>Return to Service failed -local maintenance not accessible</i>	step 20
other than listed here	step 117

- 20 To perform an in-service test on the LIM unit for the APU, type
>TST UNIT unit_no

PM APU minor (continued)

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

Note: In step 10, you recorded the F-bus number that contains the out-of-service APU tap. The LIM unit 0 associates with F-bus 0. The LIM unit 1 associates with F bus 1.

If the TST command	Do
passed	step 45
failed, and the system generated a card list	step 21
failed, and the system did not generate a card list	step 117
is other than listed here	step 117

21 Record the location, description, slot number, PEC, and PEC suffix of the cards on the list.

22



WARNING

Potential loss of service

Make sure that the mate LIM unit is in service before you manually busy the LIM unit. This LIM unit contains the card that you want to replace. If you do not make sure that the unit is in service, you can isolate nodes. The nodes are on link interface shelves (LIS) 1, 2, and 3.

Determine the state of the mate LIM unit.

Note: If the APU tap that is out of service is on F-bus 0, LIM unit 1 is the mate unit. If the APU tap that is out of service is on F-bus 1, LIM unit 0 is the mate unit.

If the state of the mate LIM unit	Do
is <i>InSv</i> or <i>ISTb</i>	step 25
is other than listed here	step 23

23 Perform the correct alarm clearing procedure in this document to return the LIM unit to service. Complete the procedure and return to this point.

24 Go to step 15.

PM APU minor (continued)

- 25 To access the F-bus level of the MAP display, type
>FBUS
 and press the Enter key.

Example of a MAP display:

```

                Tap:  0    4    8    12   16   20   24   28   32
FBus0: InSv      .....    ....  ---  ---  ---  ---  ---
FBus1: InSv      ...M .I.. .S..  ....  ---  ---  ---  ---
  
```

Note: In the example, B indicates that the F-bus is manually busy. The letter B also can indicate the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap, An M indicates a manually busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

26



WARNING

Potential loss of service

Make sure the mate F-bus is in service. Make sure the taps for equipped and online nodes are in service. Make sure that the mate F-bus and taps are in service before you manually busy the LIM unit. The LIM unit contains the card you want to replace. If you do not make sure the mate F-bus and taps are in service, you can isolate nodes. The nodes are on LIS 1, 2, and 3.

Determine the state of the mate F-bus.

Note: If the out-of-service APU tap is on F-bus 0, F-bus 1 is the mate unit. If the out-of-service APU tap is on F-bus 1, F-bus 0 is the mate unit. The F-bus state appears on the right of the words FBus0 or FBus1 in the example MAP display in step 25.

If the state of the mate F-bus	Do
is <i>InSv</i> or <i>ISTb</i>	step 29
is other than listed here	step 27

- 27 Perform the correct alarm clearing procedure in this document to return the mate F-bus to service. Complete the procedure and return to this point.
- 28 Go to step 15.
- 29 Determine the state of the taps on the mate F-bus.

Note: The tap states appear in the two rows of characters under the numbers 0 to 35 (or 0 to 23). The location of the tap states appear in the example MAP display in step 25. If the out-of-service APU tap is on F-bus

PM APU minor (continued)

0, examine the taps on F-bus 1. If the out-of-service APU tap is on F-bus 1, examine the taps on F-bus 0.

	If the taps on the mate F-bus	Do
	are in service (.) or in-service trouble (I)	step 32
	are manual busy (M) or system busy (S)	step 30
30	Perform the correct alarm clearing procedure in this document to return the taps to service. Complete the procedure and return to this point.	
31	Go to step 15.	
32		



CAUTION

Loss of service

Manually busy the F-bus for the LIM unit that contains the card that you replace. If you do not manually busy the F-bus, a loss of CCS7 messaging for all application specific units (ASU) occurs. The ASUs are in the link peripheral processor (LPP) that carry traffic.

Manually busy the F-bus for the LIM unit that contains the card that you replace. To manually busy the F-bus, type

>BSY FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

Note: F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

If the response	Do
is <i>LIM x FBus y Busy initiated.</i> <i>LIM x FBus y Busy passed.</i>	step 34
is <i>LIM x FBus y Busy requires confirmation because the following PMs may be active on this bus...PM xx unit 0PM xx unit 1</i> Please confirm ("YES", "Y", "NO", or "N"):	step 33

PM APU

minor (continued)

- 33** To confirm the command, type

>YES

and press the Enter key.

Example of a MAP display:

```

                Tap:  0    4    8   12   16   20   24   28   32
FBus0: ManB      BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv      .... .... .... .... ---- ---- ---- ---. ...

```

LIM 1 FBus 0 Busy initiated.

LIM 1 FBus 0 Busy passed.

Note: The previous example shows a manually busy F-bus 0.

- 34** To manually busy the LIM unit that contains the card that has faults, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

- 35** To reset the LIM unit, type

>PMRESET unit_no

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

If the PMRESET command	Do
passed	step 42
failed	step 36

- 36** To load the LIM unit, type

>LOADPM UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 42

PM APU minor (continued)

	If the LOADPM command	Do
	failed, and the system generated a card list	step 37
	failed, and the system did not generate a card list	step 117
37	Change the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
	At the MAP display	
38	To manually busy the offline APU, type >BSY APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU unit (0 to 511)	
39	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the LOADPM command	Do
	passed	step 42
	failed, and you did not replace all cards on the list that you recorded in step 37	step 40
	failed, and you replaced all cards on the list that you recorded in step 37	step 117
40	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
41	Go to step 38.	
42	To return the LIM unit for the APU to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i>	

PM APU

minor (continued)

unit_no
is the number of the LIM unit (0 or 1)

If the RTS command	Do
passed	step 43
failed	step 117

43 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

44 To return the F-bus to service, type

>RTS FBUS fbus_no

and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

Note: F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

If the RTS command	Do
passed	step 45
failed	step 117

45 To return the F-bus tap for the APU to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 116
failed, and the system generated a card list	step 46
failed, and the system did not generate a card list	step 91

PM APU minor (continued)

- 46** Record the location, description, slot number, the product engineering code (PEC), and PEC suffix of the cards on the list.
- 47** To quit from the F-bus level of the MAP display, type
>QUIT
and press the Enter key.
- 48** To post the APU that you recorded in step 3, type
>POST APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU unit (0 to 511)
- 49** To manually busy the APU, type
>BSY
and press the Enter key.
- | If the BSY command | Do |
|----------------------------|---------|
| passed | step 52 |
| failed | step 51 |
| prompts for a confirmation | step 50 |
- 50** To confirm the command, type
>YES
and press the Enter key.
Go to step 52.
- 51** To force the APU to busy, type
>BSYFORCE
and press the Enter key.
- 52** Change the first card on the list that you recorded in step 46. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 53** To manually busy the offline APU, type
>BSY APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU unit (0 to 511)

PM APU
minor (continued)

- 54** To reset the APU, type
>PMRESET
and press the Enter key.
- | If the PMRESET command | Do |
|-------------------------------|---------|
| passed | step 56 |
| failed | step 55 |
- 55** To load the APU, type
>LOADPM
and press the Enter key.
- | If the LOADPM command | Do |
|---|---------|
| passed | step 56 |
| failed, and you did not replace all cards on the list that you recorded | step 61 |
| failed, and you replaced all cards on the list that you recorded | step 97 |
- 56** To post the LIM for the APU, type
>POST LIM lim_no
and press the Enter key.
where
lim_no
is the number of the LIM (0 to 17)
- 57** To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.
- 58** To return the F-bus tap for the APU to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.
where
fbus_no
is the number of the F-bus (0 or 1)

PM APU minor (continued)

tap_no
is the number of the F-bus tap (0 to 35)

	If the RTS command	Do
	passed	step 64
	failed, and you did not replace all cards on the list that you recorded	step 59
	failed, and you replaced all cards on the list that you recorded	step 91
59	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
60	To post the APU, type >POST APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU unit (0 to 511)	
61	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
62	To manually busy the offline APU, type >BSY APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU unit (0 to 511)	
63	Go to step 53.	
64	To quit the F-bus level of the MAP display, type >QUIT and press the Enter key.	
65	To post the APU, type >POST APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU unit (0 to 511)	

PM APU minor (continued)

- 66 To return the APU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 118
failed	step 97

67



CAUTION

Possible action that affects service

Contact the next level of support before you continue.
Contact the next level of support to make sure that you can
change the default load or the running load.

Record the names of the default load and the running load.

Example of a MAP response:

```
PM type:APU  PM No.:1    Status: ISTb
LIM: 1  Shelf:2  Slot: 12    APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
ISTB conditions:
    Loadname Mismatch
LMS States:   ISTb  ISTb
Auditing :    Yes  Yes
Msg Channels: Acc  Acc
TAP 2 :      .    .
```

- 68 The default load and the running load do not match. To correct this fault, you must change the default load or the running load.

If instructions direct you to	Do
change the default load	step 69
change the running load	step 78
not take action	step 118

- 69 To access table PMLOADS, type
>TABLE PMLOADS
and press the Enter key.

PM APU minor (continued)

- 70 To position the default load in table PMLOADS, type
>POSITION load_name
 and press the Enter key.
where

load_name
 is the number of the default load

- 71 Determine if the default load is in table PMLOADS.

If the default load	Do
is in the table	step 72
is not in the table	step 117

- 72 To quit from the table, type
>QUIT
 and press the Enter key.

- 73 To access table LIUINV, type
>TABLE LIUINV
 and press the Enter key.
Example of a MAP response:

TABLE : LIUINV

- 74 To change the position on the key value of the tuple, type
>POSITION APU apu_no
 and press the Enter key.
where

apu_no
 is the number of the APU unit (0 to 511)

- 75 To indicate the field in the tuple that you want to change, type
>CHANGELoad

- 76 To enter the new value of the field that you want to change, type
new_load_name
 and press the Enter key.
where

new_load_name
 is the number of the running load that you recorded in

step 67

PM APU
minor (continued)

- 77** Make sure that the indicated changes are correct. To confirm the new value of the changed field, type
>Y
and press the Enter key.
MAP response:

TUPLE CHANGED
- 78** To quit from the table, type
>QUIT
and press the Enter key.
Go to step 116.
- 79** To manually busy the APU, type
>BSY
and press the Enter key.
- | If the BSY command | Do |
|----------------------------|---------|
| passed | step 82 |
| failed | step 81 |
| prompts for a confirmation | step 80 |
- 80** To confirm the command, type
>YES
and press the Enter key.
Go to step 82.
- 81** To force the APU to busy, type
>BSYFORCE
and press the Enter key.
- 82** To load the APU, type
>LOADPM
and press the Enter key.
- | If the LOADPM command | Do |
|--|---------|
| passed | step 90 |
| failed, and the system generated a card list | step 83 |

PM APU minor (continued)

	If the LOADPM command	Do
	failed, and the system did not generate a card list	step 97
83	Record the location, description, slot number, the production engineering code (PEC), and the PEC suffix of the cards on the list.	
84	Change the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
At the MAP display		
85	To manually busy the offline APU, type >BSY APU apu_no and press the Enter key. <i>where</i> apu_no is the number of the APU unit (0 to 511)	
86	To set the APU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 90
	failed	step 87
87	To load the APU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 90
	failed, and you did not replace all cards on the list that you recorded in step 83	step 88
	failed, and you replaced all cards on the list that you recorded in step 83	step 97
88	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
89	Go to step 85.	

PM APU
minor (continued)

- 90** To return the APU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 116
failed	step 97

- 91** To quit the F-bus level of the MAP display, type
>QUIT
and press the Enter key.

- 92** To post the APU, type
>POST APU apu_no
and press the Enter key.
where
apu_no
is the number of the APU unit (0 to 511)

- 93** Determine the state of the APU.

If the state of the APU	Do
is ManB	step 97
is not ManB	step 94

- 94** To manually busy the APU, type
>BSY
and press the Enter key.

If the BSY command	Do
passed	step 97
failed	step 96
prompts for a confirmation	step 95

- 95** To confirm the command, type
>YES
and press the Enter key.
Go to step 97.

PM APU minor (continued)

- 96 To force the APU to busy, type

>BSYFORCE

and press the Enter key.

- 97 To offline the APU, type

>OFFL

and press the Enter key.

- 98 To determine the location of the APU, type

>QUERYPM

and press the Enter key.

Note: The QUERYPM command provides the LIM number, shelf number, and slot number of the front far-left card of the APU.

Example of a MAP response:

```
PM type:APU  PM No.:110  Status: OffL
LIM: 1  Shelf:2  Slot: 12      APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
Msg Channel #0 NA
TAP #0 OOS/NA
LMS States:   InSv  InSv
Auditing :    No   Yes
Msg Channels: NA    Acc
TAP 2 :       M    .
```

At the LPP

99



WARNING

Static electricity damage

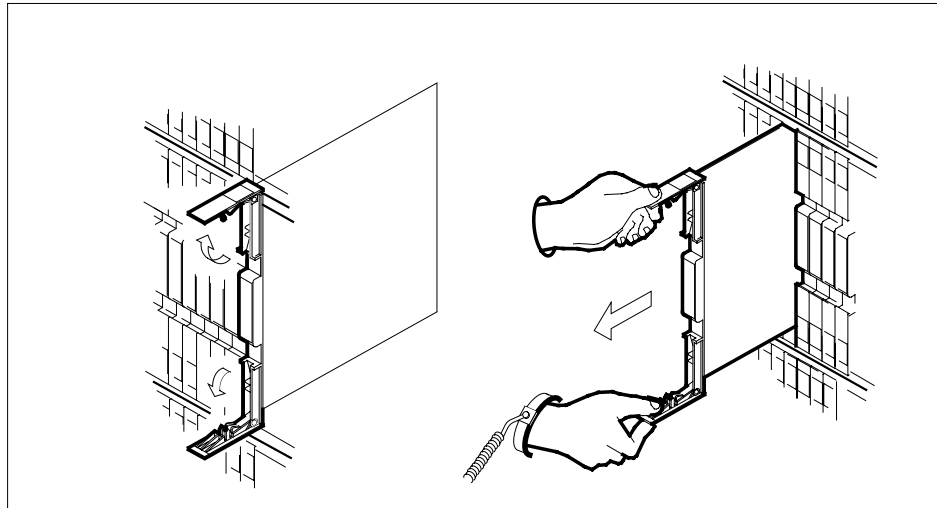
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X14 card for the APU.

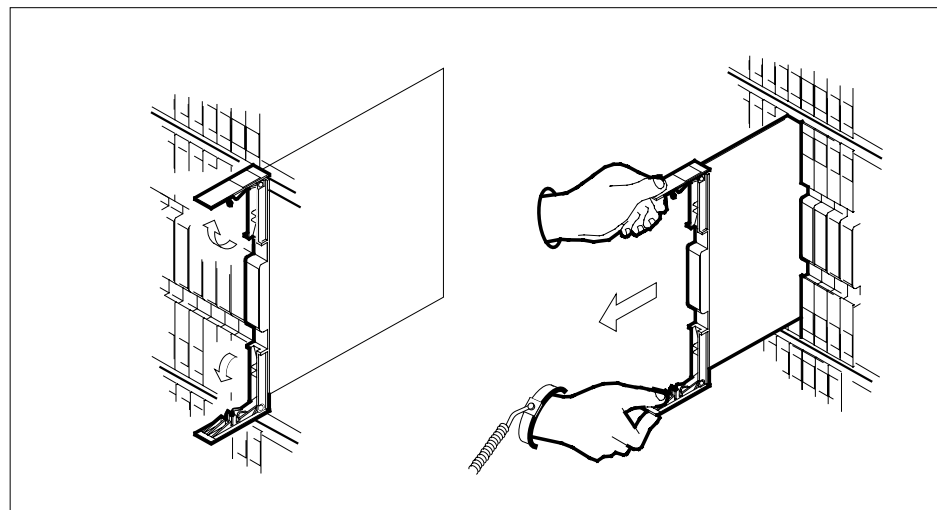
- 100 Open the locking levers on the card. Carefully pull the NT9X14 card toward you until you remove the card from the connector.

PM APU

minor (continued)



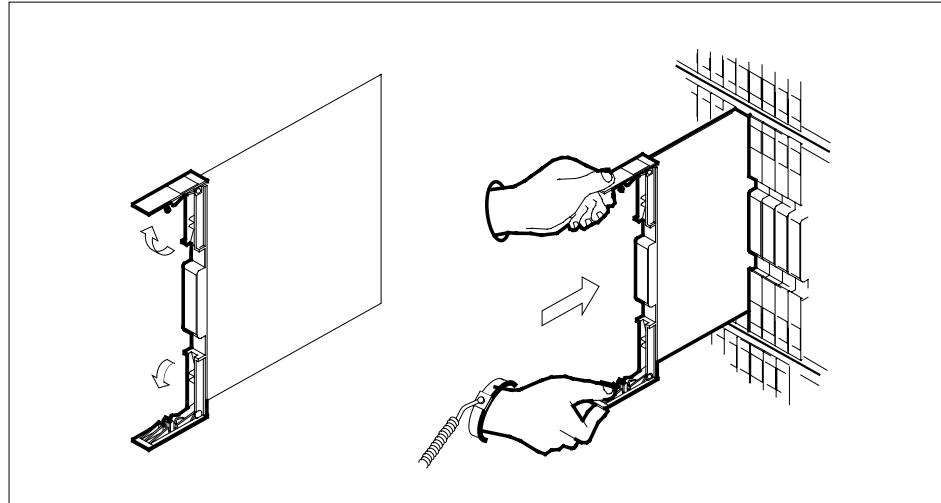
- 101** Leave the NT9X14 card in the slot on the link interface shelf (LIS).
- 102** Locate the NTEX22 card for the APU.
- 103** Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



- 104** Carefully slide the NTEX22 card back into the LIS.
- 105** Seat and lock the NTEX22 card as follows:
 - Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
 - Close the locking levers.

PM APU minor (continued)

- 106** Carefully slide the NT9X14 card back into the LIS.



- 107** Seat and lock the NT9X14 card as follows:

- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

- 108** To manually busy the APU, type
>BSY
and press the Enter key.

If the BSY command	Do
passed	step 109
failed	step 117

- 109** To load the APU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 111
failed, the system generated a card list and you did not replace any cards in the APU	step 110

PM APU minor (continued)

	If the LOADPM command	Do
	failed, the system generated a card list and you re-placed cards in the APU	step 117
	failed, and the system did not generate a card list	step 117
110	Record the location, description, slot number, the PEC, and PEC suffix of the cards on the list. Go to step 37.	
111	To return the APU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 112
	failed, the system generated a card list and you re-placed any cards in the APU	step 110
	failed, the system generated a card list and you re-placed cards in the APU	step 117
	failed, and the system did not generate a card list	step 117
112	To post the LIM for the APU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 17)	
113	To access the F-bus level of the MAP display, type >FBUS and press the Enter key.	
114	Determine if one of the APU taps is manually busy.	
	If an APU tap	Do
	is manually busy	step 115
	is not manually busy	step 116
115	To return the F-bus tap for the APU to service, type >RTS FBUS fbus_no tap_no	

**PM APU
minor (end)**

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

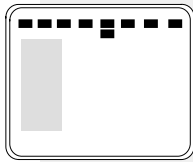
tap_no

is the number of the F-bus tap (0 to 35)

		If the RTS command	Do
		passed	step 116
		failed	step 117
116	Determine if one APU minor alarm cleared.		
		If an APU minor alarm	Do
		cleared	step 118
		did not clear	step 117
117	For additional help, contact the next level of support.		
118	The procedure is complete.		

PM CBSY major

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1CBSY	.	.	.	.
				M				

Indication

At the MTC level of the MAP display, CBSY (preceded by a number and followed by an M) appears under the PM header of the alarm banner. A CBSY indicates a C-side busy (CBsy) major alarm. The number that precedes the CBsy indicates the number of peripheral modules (PM) affected by the alarm. The previous figure illustrates an alarm banner with a CBsy major alarm.

This alarm applies only to the following PMs:

- maintenance trunk module (MTM)
- service trunk module (STM)
- trunk module 8 (TM8)

Meaning

The indicated PMs are CBsy.

Result

The PM cannot communicate with the device on the C-side of the PM.

Common procedures

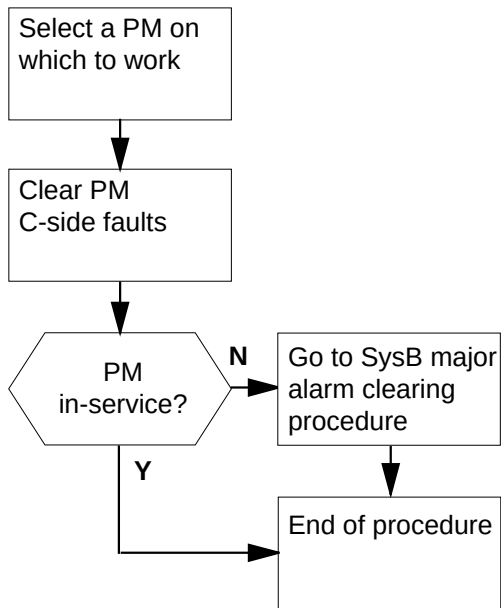
This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*

Do not go to the common procedure unless the step-action procedure directs you to go.

Action

The following flowchart is a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

**PM CBSY
major** (continued)**Summary of clearing a PM CBSY major alarm**

This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

PM CBSY

major (continued)

Clearing a PM CBSY major alarm

At the MAP terminal

- 1** To access the PM level of the MAP display, type

>MAPCI ; MTC : PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

If	Do

an audible alarm rings	step 2

the M indicator at the alarm banner flashes	step 2

other than listed here	step 3

-
- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To display all CBsy PMs, type

>DISP STATE CBSY

and press the Enter key.

Example of a MAP display:

CBsy TM8 : 0

Note: If multiple types of PMs are CBsy, work on MTMs first. If multiple PMs are CBsy, select one on which to work.

Record the number of the PM.

- 4** Go to the common procedure *Clearing PM C-side faults*. Complete the procedure and return to this point.

If the PM	Do

changes to SysB	step 5

remains CBsy	step 6

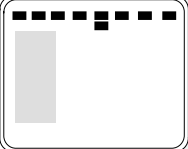
returns to service	step 7

**PM CBSY
major (end)**

- 5** The CBSy major alarm changed to a SysB major alarm. Refer to the correct procedure in this document. Go to step 7.
- 6** Treat the CBSy PM as a SysB PM. Refer to the correct procedure in this document. Go to step 7.
- 7** The procedure is complete.

PM DCH major

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1DCH	.	.	.	.	.
					M					

Indication

DCH (preceded by a number) appears under the PM header of the alarm banner. An M follows the DCH. The DCH indicates a major alarm for a D-channel handler (DCH). The number that precedes the DCH indicates the number of DCHs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DCH major alarm.

Meaning

A DCH is system busy. A system-busy DCH causes the peripheral module (PM) that contains the DCH to have in-service trouble. A DCH is system busy for any of the following reasons:

- the ISDN signaling preprocessor (ISP) or the central control (CC) cannot communicate with the DCH
- a DCH returns to service from a C-side busy state
- a DCH goes through system-initiated diagnostics
- a DCH begins after the PM started again
- a DCH takeover failed
- a DCH appears to babble
- traps cause a DCH reset

Result

The affected DCH cannot support ISDN service. The system automatically assigns ISDN service groups (ISG) to the spare DCH because all offices have DCH sparing.

Common procedures

This procedure refers to *Monitoring system maintenance*.

Do not go to the common procedure unless the step-action procedure directs you to go.

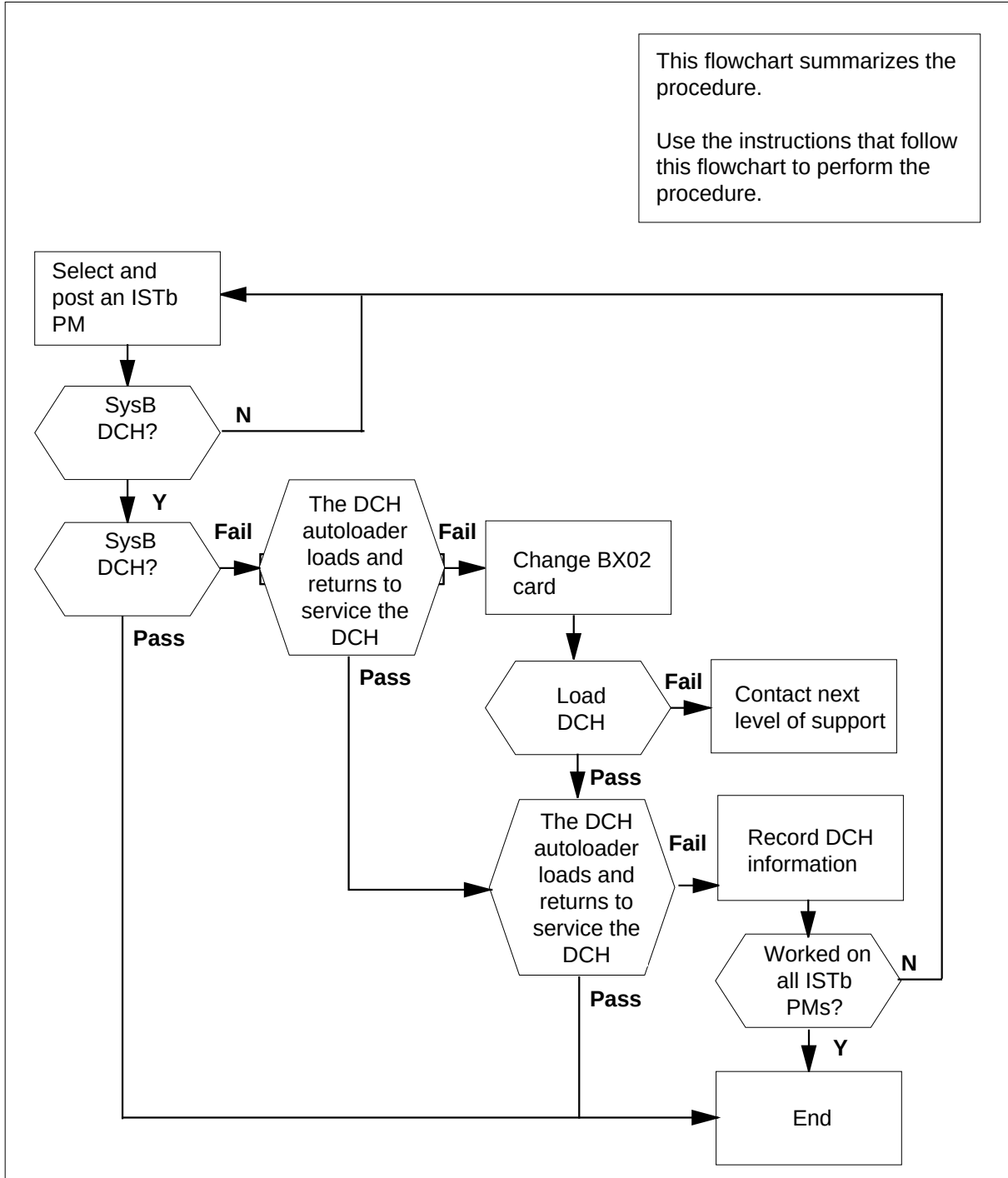
PM DCH
major (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM DCH major (continued)

Summary of clearing a PM DCH major alarm



PM DCH major (continued)

Clearing a PM DCH major alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI : MTC ; PM

and press the Enter key.

Example of a MAP response

PM	SysB 8	ManB 0	OffL 19	CBsy 19	ISTb 3	InSv 13

If

Do

an audible alarm rings

step 2

the M indicator at the alarm banner flashes

step 2

is other than listed here

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all in-service trouble PMs, type

>DISP STATE ISTB

and press the Enter key.

Example of a MAP response

ISTb LTC : 0, 10, 90

- 4 Record the PM type and the PM numbers for all in-service trouble PMs that have DCHs.

Note: The PM type appears on the right of the ISTb header in the MAP response. The PM number for each in-service trouble PM appears on the right of the PM type. Commas separate multiple in-service trouble PMs.

- 5 To post a PM from the list that you recorded in step 4, type

>POST pm_type pm_no

and press the Enter key.

where

pm_type

is the PM type that you recorded in step 4

PM DCH major (continued)

pm_no

is the PM number that you recorded in step 4

Example input

>POST LTC 0

Example of a MAP response

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 0 ISTb Links_00S: CSide 0 , PSide 1
Unit0: Act InSv
Unit1: Inact InSv

If an MTCE flag

Do

appears next to either unit

step 6

does not appear

step 7

6

Go to the common procedure *Monitoring system maintenance*. Complete the procedure and return to this step.

If the major alarm

Do

remains

step 7

changes

step 22

clears

step 23

7

To determine the DCH that is SysB, type

>TRNSL P

and press the Enter key.

Example of a MAP response

PM DCH major (continued)

```
LGCI      0 ISTb  Links_00S: CSide  16 , PSide  0
Unit0:    Act   InSv
Unit1:    Inact InSv
```

```
TRNSL P
Link  0:  Multiple nodes   0;Cap MS;Status:OK
;MsgCond:OPN
```

```
Link  1:  Carrier of Class – Trunk ;Status:Offl
Link 13:  DCH 3;Status:OK
```

```
Link 15:  DCH 2;Status:OK
Link 17:  DCH 0;Status:SysB
```

```
Link 19:  DCH 1;Status:OK
```

- 8** To access the DCH level of the MAP terminal and determine the state of the DCHs, type

>DCH

and press the Enter key.

Example of a MAP response

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

```
LTC      0 ISTb  Links_00S: CSide  0 , PSide  1
Unit0:    Act   InSv
Unit1:    Inact InSv
```

	SysB	ManB	OffL	CBsy	ISTb	InSv
DCH	2	1	0	0	2	1

Note: The states for all DCHs that associate with the posted PM appear on the bottom line of the MAP display. You obtained the bottom line of the MAP display in step 8.

If	Do
a minimum of one DCHs that associates with the posted PM is SysB	step 9
all DCHs associated with the posted PM are InSv or ISTb	step 17

PM DCH major (continued)

- 9 To post the SysB DCH identified in step 7 and determine the SysB DCH fault, type

>POST dch_no

and press the Enter key.

where

dch_no
is the number of the DCH

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

```
LTC    0 ISTb Links_00S: CSide 0 , PSide 1
Unit0:  Act  InSv
Unit1:  Inact InSv
```

```
DCH          2      1      0      0      2      1
DCH 82 ISG 200 SysB LTC    0 port 3 Access error
```

Example of a MAP response

Note 1: When the posted set includes a minimum of two DCHs, the DCHs appear one at a time. The appearance of the DCHs begins with the first unit of the posted set.

Note 2: The fault reason appears at the end of the line for the current DCH of the posted set. In the previous example, the fault reason is Access error.

If within 1 min the state of the DCH	Do

is SysB	step 10

is InSv or ISTb	step 16

Note: The DCH autoloader loads and returns to service one DCH at a time. Log DCH604 documents which DCHs the loader has an effect on.

- 10 To manually busy the DCH, type

>BSY

and press the Enter key.

Note: The autoloader services one DCH at a time. The operating company might decide to abort the autoloader process and manually load multiple DCHs in parallel. Manually loading DCH cards in parallel is faster than the autoloader process.

Example of a MAP response

```
DCH 82 Bsy Passed
```

- 11 To return the DCH to service, type

>RTS

PM DCH major (continued)

and press the Enter key.

Example of a MAP response

```
DCH 82 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
DCH 82 Tst Failed Testid : DCHIFdiag
```

If the RTS	Do
fails and the DCH is ManB	step 12
passes and the DCH is InSv or ISTb	step 16

- 12** To load the DCH, type

>LOADPM

and press the Enter key.

Example of a MAP response

```
Request submitted on DCH 82
DCH 82 load Passed : DCH36A
```

If the LOADPM	Do
fails	step 13
passes	step 14
fails and you replaced the BX02 card	step 21

- 13** To change the NTB02 card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to step 12.

- 14** To return the DCH to service, type

>RTS

and press the Enter key.

Example of a MAP response

PM DCH

major (continued)

DCH 82 Out-of-service test initiated
DCH 82 Tst Passed
DCH 82 Rts Passed

If the RTS	Do
fails and the DCH remains ManB	step 15
passes and the DCH is either InSv or ISTb	step 16

- 15** Record the following information about the DCH in use.
- the PM type and number
 - the DCH number
 - the original and the current fault reason, and the state of the DCH
- You will require additional maintenance action to recover this DCH. Go to step 16 and work on another DCH. Return all system-busy DCHs to service. Give the information recorded in step 15 to the next level of support.

- 16** To display the next DCH in the posted set, type
>NEXT
and press the Enter key.

If	Do
another SysB DCH appears	step 10
End of post set appears	step 17

- 17** Review the list of ISTb PMs that you recorded in step 4.

If you	Do
did not work on all PMs on the list	step 18
worked on all the PMs on the list, and you did not return all DCHs to service	step 21
worked on all the PMs on the list, and you returned all DCHs to service	step 23

- 18** To return to the PM level of the MAP terminal, type
>QUIT
and press the Enter key.

**PM DCH
major (end)**

- 19** To post the next PM on the list that you recorded in step 4, type

>POST pm_type pm_no

and press the Enter key.

where

pm_type

is the PM type that you recorded in step 4

pm_no

is the PM number that you recorded in step 4

If an MTCE flag

Do

appears next to either unit

step 20

does not appear

step 7

- 20** Go to the common procedure *Monitoring system maintenance*. Complete the procedure and return to this step.

If the major alarm

Do

remains

step 7

changes

step 22

clears

step 23

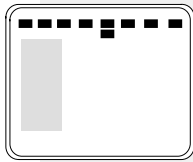
- 21** You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to clear this alarm. Go to step 23.

- 22** The DCH major alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.

- 23** The procedure is complete.

PM DCH minor

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1DCH	.	.	.		.

Indication

DCH (preceded by a number) appears under the PM header of the alarm banner. The DCH indicates a minor alarm for a D-channel handler (DCH). The number that precedes indicates the number of DCHs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DCH minor alarm.

Meaning

A DCH is in-service trouble. The DCH is in-service trouble for any of the following reasons:

- a congested or overloaded DCH
- a command protocol violation
- ISDN service group (ISG) channels associated to a DCH are manual busy or system busy
- DCH product engineering code (PEC), load, or sparing problems
- DCH is manual busy

A C-side busy DCH causes a DCH minor alarm. All DCHs for the PM that are not manual busy or off-line will be C-side busy. The C-side busy DCHs occur when the PM is system busy. The PM-related alarm indicator masks the DCH minor alarm indicator when the PM is system busy.

Result

In-service trouble DCHs do not affect service.

Common procedures

This procedure refers to *Monitoring system maintenance*.

Do not go to the common procedure unless the step-action procedure directs you to go.

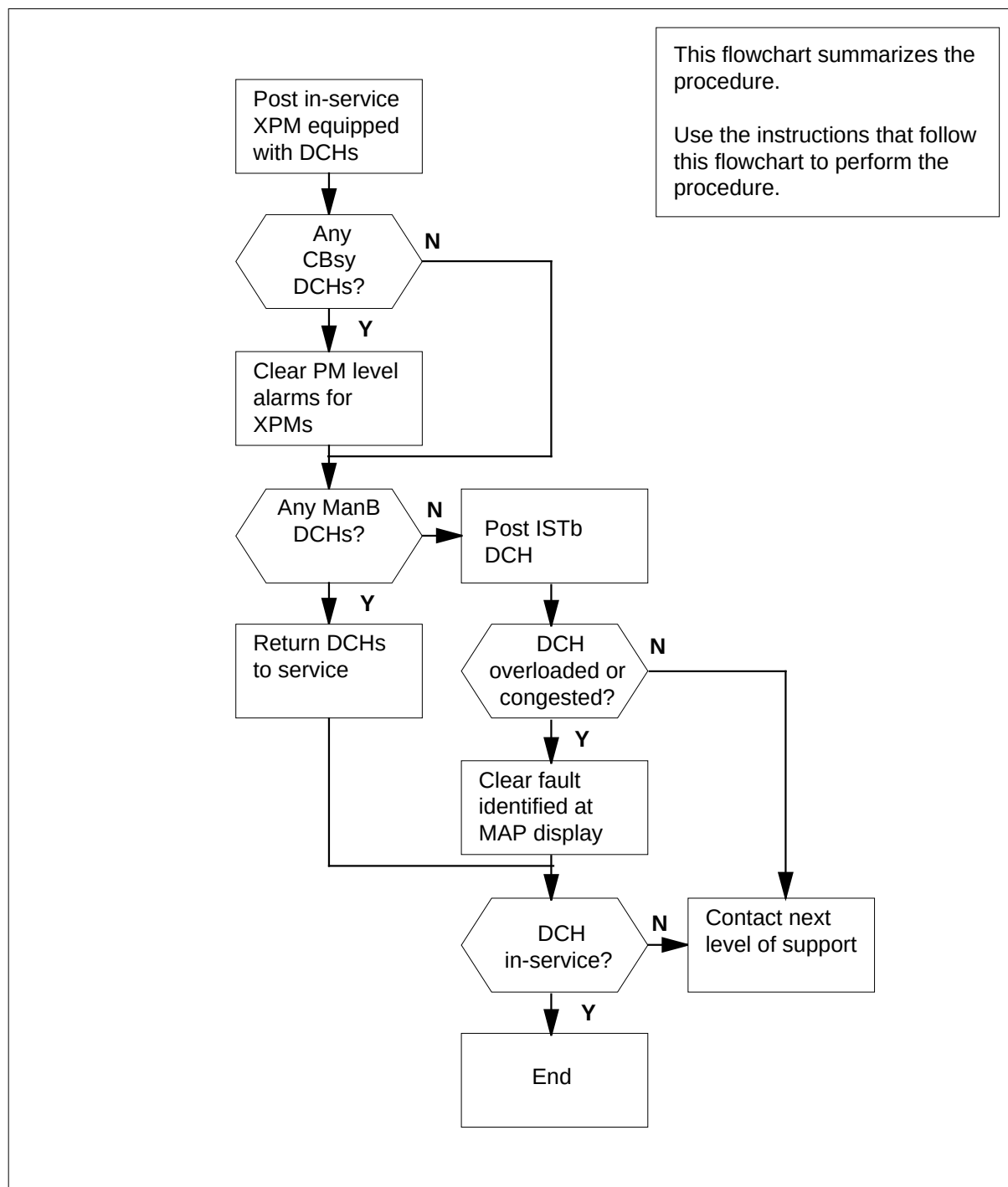
PM DCH
minor (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM DCH minor (continued)

Summary of clearing a PM DCH minor alarm



PM DCH minor (continued)

Clearing a PM DCH minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB 8	ManB 0	OffL 19	CBsy 19	ISTb 3	InSv 13

If an audible alarm

Do

rings

step 2

does not ring

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all in-service peripheral modules (PM), type

>DISP STATE INSV

and press the Enter key.

Example of a MAP response:

```
InSv MTM : 1, 2
InSv STM : 0, 2, 4, 8, 10
InSv LTC : 3
InSv DTCI: 2
InSv LCME: HOST 55 0, HOST 86 0, HOST 67 0, HOST 65 0
```

- 4 Record the PM type and the PM numbers for all in-service PMs that have DCHs. If necessary, consult office records or operating company personnel.

Note: The system displays the PM type on the right of the InSv header in the MAP response. The system displays the PM number for each in-service PM on the right of the colon. If multiple in-service PMs are present, commas separate the numbers.

- 5 To post the first PM in the list that you recorded at step 4, type

>POST pm_type pm_no

and press the Enter key.

where

PM DCH minor (continued)

pm_type

is the PM type that you recorded at step 4

pm_no

is the PM number that you recorded at step 4

Example input:

>POST LTC 3

Example of a MAP response:

	SysB	ManB	OffL	CBSy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 3 InSv Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv

- 6 To access the DCH level of the MAP terminal, type

>DCH

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBSy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 3 InSv Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv

DCH	0	1	0	0	1	3

Note: The states for all DCHs that associate with the posted PM appear on the bottom line of the MAP display.

If DCHs

Do

are present

step 7

are not present

step 8

- 7 The fault is present in the PM or the C-side of the PM that contains the DCH. To clear other PM-related alarms, perform the correct procedures to clear the alarm. Complete the procedure and return to this point.

- 8 Determine from the MAP display if manual busy or in-service trouble DCHs are present.

If

Do

ManB DCHs and ISTb DCHs are not present step10

PM DCH minor (continued)

	If	Do
	ManB DCHs and ISTb DCHs are present	step 9
	ManB DCHs are not present but ISTb DCHs are present	step 18
9	To post all manual busy DCHs, type >POST MANB and press the Enter key. <i>Example of a MAP response:</i> <pre> SysB ManB OffL CBsy ISTb InSv PM 8 0 19 19 3 13 LTC 0 0 0 0 3 4 LTC 0 ISTb Links_00S: CSide 0 , PSide 1 Unit0: Act InSv Unit1: Inact InSv DCH 0 1 0 0 1 3 DCH 82 ISG 200 ManB LTC 0 port 3 </pre>	
	Note: The posted set includes a minimum of two DCHs that appear one at a time. The appearance of the DCHs begins with the first unit of the posted set.	
10	Determine from office records or from operating company personnel why the DCH is manual busy. Determine if you can return the DCH to service.	
	If you	Do
	can return the DCH to service	step 11
	cannot return the DCH to service	step 16
11	To return the DCH to service, type >RTS and press the Enter key. <i>Example of a MAP response:</i>	

PM DCH minor (continued)

```

RTS
DCH 82 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqpEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
DCH 82 Tst Failed Testid : DCHIFdiag

```

If the RTS command	Do
passes	step 16
passes or fails, and Cbsy DCHs for the posted PM are present	step 7
fails, and Cbsy DCHs for the posted PM are not present	step 12

- 12** To load the DCH, type
>LOADPM
Example of a MAP response:

```

Request submitted on DCH 82
DCH 82 load Failed : S00DTEMP
Failed To Open File

```

If the LOADPM command	Do
passes	step 14
fails, and you replaced the BX02 card	step 15
fails, and you have not replaced the BX02 card	step 13

- 13** To replace the NTB02 card, perform the correct procedure in the *Card Replacement Procedures*. Complete the procedure and go to step 12.

- 14** To return the DCH to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passes, and the DCH is InSV	step 16
passes, and the DCH is ISTb	step 18

PM DCH minor (continued)

	If the RTS command	Do
	fails, and you did not replace the BX02 card	step 13
	fails, and you replaced the BX02 card	step 15
15	Record the following information about the DCH: - the PM type and number - the DCH number - the original fault reason (manual busy) Return the the maximum number of manual busy DCHs to service. Give this information to your next level of support.	
16	To display the next manual busy DCH in the posted set, type >NEXT and press the Enter key.	
	If	Do
	another ManB DCH displays	step 10
	End of Post Set displays	step 17
17	Determine from the MAP display if in-service trouble DCHs are present.	
	If DCHs	Do
	are present	step 18
	are not present	step 65
18	To post all DCHs that are in-service trouble, type >POST ISTB and press the Enter key. <i>Example of a MAP response:</i>	
	<pre> SysB ManB OffL CBsy ISTb InSv PM 8 0 19 19 3 13 LTC 0 0 0 0 3 4 LTC 3 InSv Links_00S: CSide 0 , PSide 0 Unit0: Inact InSv Unit1: Act InSv DCH 0 1 0 0 1 3 DCH 50 ISG 200 ISTb LTC 3 port 3 Overloaded </pre>	

PM DCH
minor (continued)

Note: When the posted set includes a minimum of two DCHs, the DCHs appear one at a time. The DCHs begin with the first unit of the posted set.

- 19** Determine the fault reason for the current DCH displayed in the posted set.

Note: The fault reason appears at the end of the line for the posted DCH. In the example at step 18, the fault reason is Overloaded.

If the fault reason	Do
is Congested	step 20
is CPV	step 22
is DCH Chnls BSY	step 27
is Off	step 37
is Incorrect PEC	step 40
is Loadname	step 55
is Over loaded	step 20

- 20** A DCH equipment problem is present. Record the following information about the DCH:

- the PM type and number
- the DCH number
- the fault reason that you obtained at step 19

After you return to service all possible DCHs, give this information to the next level of support.

- 21** To display the next DCH in the posted set, type
>NEXT
and press the Enter key.

If	Do
another ISTb DCH displays	step 19
End of post set displays	step 65

- 22** To cancel any maintenance action in progress for this DCH, type
>ABTK
and press the Enter key.

- 23** To manually busy the DCH, type
>BSY
and press the Enter key.

PM DCH minor (continued)

Example of a MAP response:

DCH 50 Bsy Passed

- 24 To return the DCH to service, type
>RTS

Example of a MAP response:

```
DCH 50 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 003 05 BX02
DCH 50 Tst Failed Testid : DCHIFdiag
```

If the RTS command	Do
passes	step 26
fails	step 25

- 25 Record the following information about the DCH:
- the PM type and number
 - the DCH number
 - the original fault reason (and the current fault reason if different from the original)

Clear all the in-service trouble fault reasons for the DCHs. Give this information to the next level of support.

- 26 To display the next DCH in the posted set, type
>NEXT
and press the Enter key.

If	Do
another ISTb DCH displays	step 19
End of post set displays	step 65

- 27 Record the DCH number and the ISG number for the posted set.
- Note:** The DCH number appears on the right of the DCH header on the bottom line of the MAP display. The ISG number appears on the right of the ISG header on the bottom line of the MAP display.

Example of a MAP response:

PM DCH minor (continued)

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 3 InSv Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv

DCH	0	0	0	0	1	4
DCH 50 ISG 200 ISTb LTC	3 port	3 DCH	CHNLS	BSY		

- 28 To access the ISG level of the MAP terminal, type

>ISG

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 3 InSv Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
ISG 1111111111 2222222222 33
123456789 0123456789 0123456789 01

- 29 To post the ISG for the in-service trouble DCH, type

>POST isg_no

and press the Enter key.

where

isg_no

is the number of the ISG (0 to 255) that you recorded at step 27

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	8	0	19	19	3	13
LTC	0	0	0	0	3	4

LTC 3 InSv Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
ISG 1111111111 2222222222 33
123456789 0123456789 0123456789 01
..... 00000 0000..... MM

ISG 42 DCH 50 ISTb LTC 3 port 3 DCH Chnls BSY

PM DCH minor (continued)

- 30** Determine the state of the ISG channel that associate with the DCH.
- | If a minimum of one channel | Do |
|---|---------|
| is M (manual busy) and is not in any other out-of-service state | step 31 |
| is any other out-of-service state | step 35 |
- 31** To return the ISG channels to service, type
>RTS ALL
and press the Enter key.
- | If all manual busy ISG channels | Do |
|---------------------------------|---------|
| returned to service | step 33 |
| did not return to service | step 4 |
- 32** Record the state of the ISG channels.
Note: The state of the ISG channels appears on the right of the DCH number in the MAPdisplay.
- 33** To access the DCH level of the MAP display and post the DCH that you recorded in step 27, type
>DCH; POST dch_no
and press the Enter key.
where
dch_no
is the number of the DCH (0 to 255)
- 34** Determine the state of the DCH.
Note: The state of the DCH appears on the right of the ISG number on the bottom line of the MAP display.
- | If the state of the DCH | Do |
|-----------------------------------|---------|
| Text CharFormat="Mono"> InSvText> | step 36 |
| is other than listed here | step 35 |
- 35** Record the following information about the DCH:
- the PM type and number
 - the DCH
 - the original fault reason (and the current fault reason if different from the original)

PM DCH
minor (continued)

- After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.
- 36** To display the next DCH in the posted set, type
>NEXT
and press the Enter key.
- | If | Do |
|---------------------------|---------|
| another ISTb DCH displays | step 19 |
| End of post set displays | step 65 |
- 37** To turn on the sparing bit, type
>SPARING ON
and press the Enter key.
Example of a MAP response:
DCH 50 Enable Takeover Passed
- | If the SPARING command | Do |
|------------------------|---------|
| passes | step 39 |
| fails | step 38 |
- 38** Record the following information about the DCH:
- the PM type and number
 - the DCH number
 - the original fault reason (Sparing off)
- After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.
- 39** To display the next DCH in the posted set, type
>NEXT
and press the Enter key.
- | If | Do |
|---------------------------|---------|
| another ISTb DCH displays | step 19 |
| End of post set displays | step 65 |
- 40** From office records or from operating company personnel, determine the PEC and PEC suffix that the DCH must contain.
- 41** To determine the PEC that you enter for the DCH, type
>QUERYPM
and press the Enter key.
-

PM DCH minor (continued)

Example of a MAP response:

```
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
Loadnames: DCHINV - DCH01IN, DCH - DCH01IN; INTL INDEX:18
```

Note: The PEC appears under the EqPEC header on the MAP display. In this example, the PEC entered for the DCH is NTB02.

- 42** Determine the location of the DCH.

Note: The location of the DCH appears under the Site, Flr, RPos, Bay_id, and Shf headers on the MAP display. In step 41, the location of the DCH is HOST 01 B02 LTEI 00 32.

At the XPM

- 43** Locate the DCH card (NTB02) in the frame. Record the PEC and PEC suffix of the DCH in the slot.

Note: The PEC and PEC suffix appear on the faceplate of the card.

At the MAP display

- 44** Determine the level of the PEC mismatch.

If the PEC that you obtained from operating company personnel or from office records	Do
matches the PEC entered in a software table that you obtained at step 41, but not the PEC on the faceplate of the card that you obtained at step 43	step 45
matches the PEC on the faceplate of the card that you obtained at step 43, but not the PEC entered in a software table that you obtained at step 41	step 51
does not match the PEC entered in a software table that you obtained at step 41, or the PEC on the faceplate of the card that you obtained at step 43	step 51

- 45** To manually busy the DCH, type

>BSY

and press the Enter key.

Example of a MAP response:

Services may be affected
Please confirm ("YES", "Y", "NO", or "N"):

- 46** To confirm the command, type

>YES

PM DCH
minor (continued)

and press the Enter key.

Example of a MAP response:
DCH 50 Bsy Passed

- 47** To replace the NTB02 card with the card that has the correct PEC and PEC suffix, perform the correct procedure. Locate the correct procedure in the *Card Replacement Procedures*. Complete the procedure and return to this point.

- 48** To load the DCH, type

>LOADPM

and press the Enter key.

Example of a MAP response:

Request submitted on DCH 50
DCH 50 load Failed : S00DTEMP
Failed To Open File

If the LOADPM command	Do
passes	step 49
fails	step 68

- 49** To return the DCH to service, type

>RTS

and press the Enter key.

Example of a MAP response:

DCH 50 Out-of-service test initiated
DCH 50 Tst Passed
DCH 50 Rts Passed

- 50** Determine from the MAP display the state of the DCH.

Note: The state of the DCH appears on the right of the ISG number. Locate the ISG number on the bottom line of the MAP display.

If within three minutes the state of the DCH	Do
is InSv	step 52
is other than listed here	step 51

- 51** Record the following information about the DCH:

- the PM type and number
- the DCH number

PM DCH minor (continued)

- the original fault reason (and the current fault reason if different from the original)
- cards replaced
- the PEC that you obtained from office records or from operating company personnel

After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.

52 To post all DCHs that are in-service trouble, type

>POST ISTB

and press the Enter key.

If the posted set	Do
includes DCHs	step 53
does not include DCHs	step 65

53 Determine your next step.

If you	Do
worked on the displayed DCH	step 54
have not worked on the displayed DCH	step 19

54 To display the next DCH in the posted set, type

>NEXT

and press the Enter key.

If	Do
another ISTb DCH displays	step 53
End of post set displays	step 65

55 Determine from office records or from operating company personnel the correct load for the DCH.

56 To determine the entered load for the DCH and the load that runs on the DCH, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

PM DCH
minor (continued)

```
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
Loadnames DCHINV - DCH01CV , DCH - DCH35CV ; INTL INDEX 18
```

Note: The loadname entered for the DCH appears on the right of the DCHINV header. The system displays the loadname that runs on the DCH on the right of the DCH header. In this example, the loadnames are DCH01CV and DCH35CV.

- 57 Determine the level of the loadname mismatch.

If the loadname that you obtained from operating company personnel or from office records	Do
matches the loadname entered in a software table that you obtained at step 56 but not the name of the load that ran on the DCH	step 58
matches the name of the load that runs on the DCH but not the loadname entered in a software table that you obtained at step 56	step 63
does not match the loadname entered in a software table that you obtained at step 56 or the name of the load that runs on the DCH	step 63

- 58 To manually busy the DCH, type

>BSY

and press the Enter key.

Example of a MAP response:

Services may be affected

Please confirm ("YES", "Y", "NO", or "N"):

- 59 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

DCH 50 Bsy Passed

- 60 To load the DCH, type

>LOADPM

and press the Enter key.

Example of a MAP response:

PM DCH minor (continued)

Request submitted on DCH 50
DCH 50 load Failed : S00DTEMP
Failed To Open File

	If the LOADPM command	Do
	passed	step 61
	failed	step 68
61	To return the DCH to service, type >RTS and press the Enter key. <i>Example of a MAP response:</i> DCH 50 Out-of-service test initiated DCH 50 Tst Passed DCH 50 Rts Passed	
62	Determine the state of the DCH. Note: The state of the DCH appears on the right of the ISG number. Locate the ISG number on the bottom line of the MAP display.	
	If within three minutes the state of the DCH	Do
	is InSv	step 64
	is other than listed here	step 63
63	Record the following information about the DCH: - the PM type and number - the DCH number - the original fault reason (Loadname) - the loadname that you obtained from office records or from operating company personnel After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.	
64	To display the next DCH in the posted set, type >NEXT	

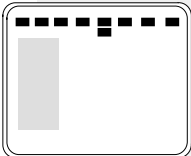
PM DCH minor (end)

and press the Enter key.

	If	Do
	another ISTb DCH displays	step 19
	End of post set displays	step 65
65	Determine your next step.	
	If you	Do
	posted all in-service PMs and worked on all in-service trouble or manual busy DCHs and all DCHs are in-service	step 69
	posted all in-service PMs and worked on all in-service trouble or manual busy DCHs and not all DCHs could be returned to service	step 68
	did not post all in-service PMs	step 66
66	To quit the DCH level of the MAP display, type >QUIT and press the Enter key.	
67	To post the next PM on the list that you recorded at step 4, type >POST pm_type pm_no and press the Enter key. <i>where</i> pm_type is the PM type that you recorded at step 4 pm_no is the PM number that you recorded at step 4 Go to step 5.	
68	You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed in your attempt to clear this alarm.	
69	This procedure is complete.	

PM DTC critical

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1DTC	.	.	.		.
				C					

Indication

DTC (preceded by a number and followed by a *C*) appears under the PM header of the alarm banner. The DTC indicates a critical alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC critical alarm.

Meaning

The DTC is system busy (SysB) or C-side busy (CBsy). A DTC is SysB if both units are SysB. A DTC is SysB if one unit is SysB and the other unit is manual busy (ManB). A DTC is CBsy if both units are CBsy.

Result

Service discontinues when a DTC is SysB or CBsy.

Common procedures

The procedures refer to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*

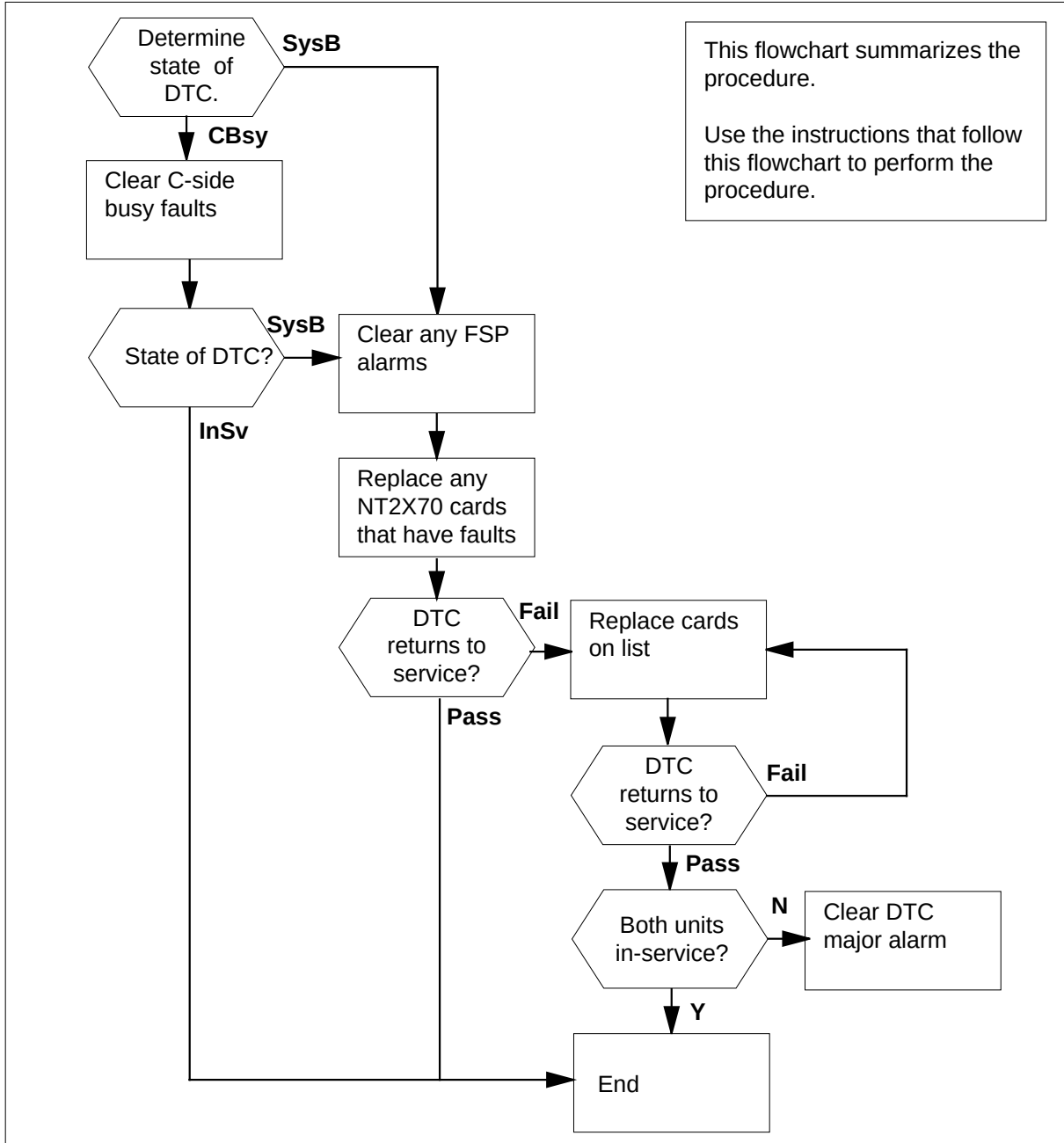
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM DTC critical (continued)

Summary of clearing a PM DTC critical alarm



PM DTC

critical (continued)

Layout of DTC shelf

Paddle boards		Cards	
25R		NT2X70 Power converter card	25F
24R		NT0X50 Filler faceplate	24F
23R		NT6X40 DS30 C-side interface card	23F
22R		NT6X40 DS30 C-side interface card	22F
21R		NT6X41 Speech bus formatter card	21F
20R	NTMX71 XPM+ terminator PB	NT6X42 Channel supervision message card	20F
19R		NT0X50 Filler Faceplate*	19F
18R		NT6X69 Message protocol and Tone card*	18F
17R		NT7X05 Peripheral/Remote Loader-16 Card	17F
16R		NT6X92 Universal tone receiver card*	16F
15R		NT6X92 Universal tone receiver card*	15F
14R		NT6X44 Time switch card	14F
13R		NT6X70 Continuity tone detector card*	13F
12R		NTSX05 SX05 processor card (Note 4) or NTMX77 Unified processor card or NTAX74 Cellular access processor (Note 2 & 3)	12F
11R		NT0X50 Filler faceplate	11F
10R		NT0X50 Filler faceplate	10F
09R		NT0X50 Filler faceplate	09F
08R		NT0X50 Filler faceplate	08F
07R		NT0X50 Filler faceplate	07F
06R		NT0X50 Filler faceplate	06F
05R		NT6X50 DS1 interface card	05F
04R		NT6X50 DS1 interface card	04F
03R		NT6X50 DS1 interface card	03F
02R		NT6X50 DS1 interface card	02F
01R		NT6X50 DS1 interface card	01F
← Rear		Front →	

Note 1: The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

Note 2: Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCL application with an XLI load.

Note 3: Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

Note 4: Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

PM DTC
critical (continued)

Clearing a PM DTC critical alarm

At the MAP terminal

- 1** To access the PM level of the MAP terminal, type
>MAPCI;MTC;PM
and press the Enter key.
Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If			Do			
an audible alarm rings			step 2			
no audible alarm rings			step 3			

- 2** To silence the alarm, type
>SIL
and press the Enter key.
- 3** To determine if SysB or CBsy DTCs caused the critical alarm, type
>STATUS
and press the Enter key.
Example of a MAP response:

PM	SysB 2	ManB 0	OffL 0	CBsy 2	ISTb 0	InSv 25
TM8	0	0	0	0	0	2
MTM	0	0	0	0	0	3
LGC	1	0	0	0	0	3
LCM	0	0	0	2	0	0
DTC	1	0	0	0	0	1
LIM	0	0	0	0	0	1
LIU7	0	0	0	0	0	1
FRIU	0	0	0	0	0	1
DTCI	0	0	0	0	0	1
LCME	0	0	0	0	0	1
						MORE . . .

Note: If DTCs are SysB and CBsy, work on the SysB DTCs first.

PM DTC critical (continued)

- 4 To display all the CBsy or SysB DTCs, type
>DISP STATE state DTC
 and press the Enter key.
where
state
 is CBsy or SysB, that you determined in step 3
Example of a MAP response:

SysB DTC : 0

Note: If multiple DTCs are CBsy or SysB, select a DTC to work on.
 Record the DTCs number.

	If you	Do
	recover a CBsy DTC	step 5
	recover a SysB DTC	step 6
5	Go to the common procedure <i>Clear PM C-side faults</i> in this document. Complete the procedure and return to this step.	
	If	Do
	the DTC remains CBsy	Treat the CBsy DTC as a SysB DTC and go to step 25.
	the DTC changes to SysB	step 6
	one DTC unit returns to service	step 46
	both DTC units return to service	step 48
6	Check the EXT header of the alarm banner for an FSP alarm.	
	If an FSP alarm	Do
	is present	step 7
	is not present	step 25
7	To locate the FSP alarm, type >EXT; LIST FSP and press the Enter key. <i>Example of a MAP response:</i>	

PM DTC critical (continued)

FSPAISD

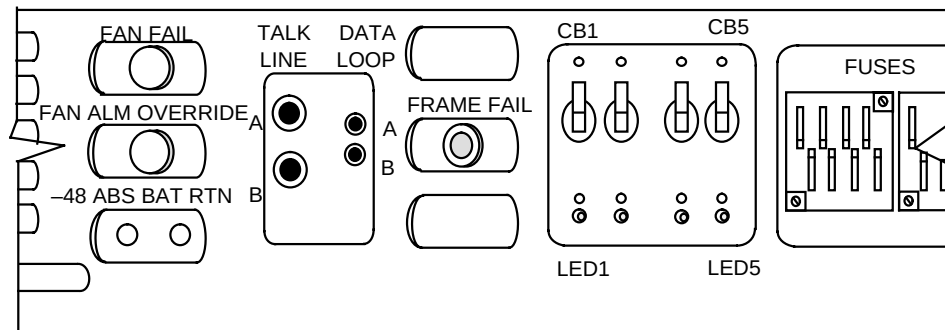
In this example, the alarm is an FSP alarm on Aisle D.

At the equipment aisle

- 8 Go to the aisle identified in step 7. The end aisle alarm will illuminate.

At the equipment frame

- 9 Identify the frame with the FSP alarm. Check the frame fail lamp on the frame supervisory panel (FSP) on each frame. The frame with the FSP alarm has an illuminated frame fail lamp. The following figure illustrates an FSP with an illuminated fail lamp.

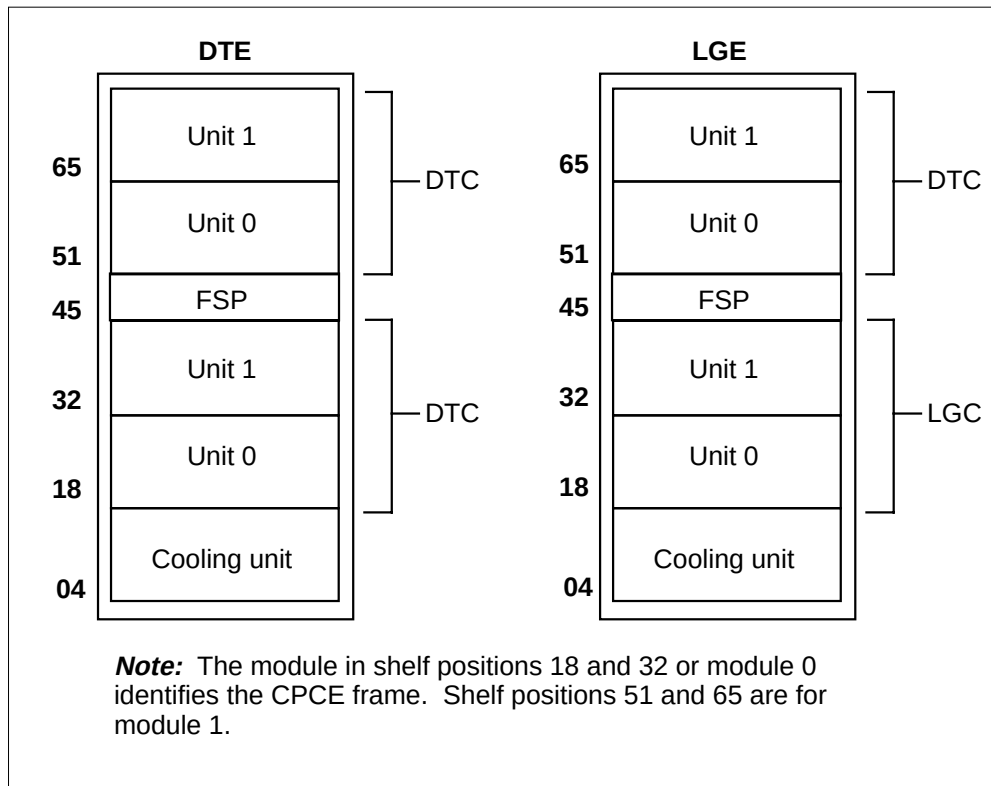


Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

- 10 For a DTC critical alarm, the frame that has the DTC is a CPCE type. The frame can be a digital trunk equipment (DTE) frame or a line group equipment (LGE) frame. Identify the PMs contained in the frame. Refer to the following figure for help.

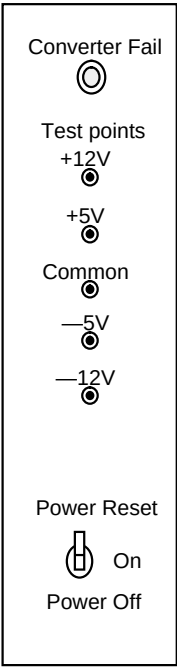
PM DTC

critical (continued)



- 11 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "Layout of DTC shelf" for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

PM DTC
critical (continued)



If any CONVERTER FAIL LEDs	Do
are lit	step 12
are not lit	step 16

12 Note the DTC with the LED lights on.

At the MAP display

13 To post the SysB DTC, type
>PM; POST DTC dtc_no
and press the Enter key.
where
dtc_no
is the number (0 to 255) of the DTC that you recorded in step 4

PM DTC critical (continued)

ATTENTION

Record the active unit (0 or 1) to use later in this procedure. When you manually busy the DTC, unit activity will not display.

Example of a MAP response:

```
PM Type: DTC  PM No.: 0  PM Int. No: 0  Node_No.: 21
PMs Equipped: 38  Loadname: ECL07BI
Unit 0 is patched
Unit 1 is patched
```

	If a Mtce indicator	Do
	displays next to either unit	step 14
	does not display	step 15
14	Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.	
	If the critical alarm	Do
	remains	step 15
	changes	step 46
	clears	step 48
15	Determine if the DTC is the same as the DTC that you identified in step 12.	
	If the DTC is	Do
	different	step 16
	the same	step 17
16	Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 6.	
17	To busy the DTC, type >BSY PM and press the Enter key.	
18	Choose the active unit on which to work, as recorded in step 13.	

PM DTC

critical (continued)

At the equipment frame

- 19 Change the NT2X70 card. Refer to the correct procedure in the *Card Replacement Procedures*. Complete the procedure and return to this step.

At the MAP terminal

- 20 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:

```
Unit 0:
  NT7X05 load File:[ECL07BI] ← (NT7X05 load file name)
  NT7X05 Image File:ECL07BI
  NT7X05 Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  NT7X05 load File: ECL07BI
  NT7X05 Image File:ECL07BI
  NT7X05 Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an DTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File:[QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 0:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packlet	Do
is present	step 21
is not present	step 24

PM DTC critical (continued)

- 21** Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card.

If the DTC is equipped with an	Do
NT7X05 PRL card	step 22
NTSX06 PRL packet	step 23

- 22** To load the DTC from the local image, type
>LOADPM PM LOCAL IMAGE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 23

- 23**



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string}. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the DTC from the local loadfile, type
>LOADPM PM LOCAL LOADFILE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 24

- 24** To load the DTC from the CM, type
>LOADPM PM

PM DTC critical (continued)

and press the Enter key.

	If the load	Do
	failed, and the system generated a card list	step 38
	failed, and the system did not generate a card list	step 47
	passed	step 37
25	To post the DTC, type >POST DTC dtc_no and press the Enter key. <i>where</i> dtc_no is the number (0 to 255) of the DTC you recorded in step 4 <i>Example of a MAP response:</i> <pre>DTC 0 SysB Links_00S: CSide 32, PSide 0 Unit0: Act SysB Unit1: Inact SysB</pre>	
	If a Mtce indicator	Do
	appears next to either unit	step 26
	does not display	step 27
26	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this step.	
	If the critical alarm	Do
	remains	step 27
	changes	step 46
	clears	step 48
27	To query the DTC for fault indications, type >QUERYPM FLT and press the Enter key. <i>Example of a MAP response:</i> Activity dropped	

PM DTC critical (continued)

- 28 Record the MAP response.

If the MAP response	Do
is SWACT In Progress	step 29
is Load Corruption	step 30
is Load Failed	step 30
is Distributed Data Loading Failed	step 30
is Activity dropped	step 30
is Not loaded since power up	step 30
is other than listed here	step 36

- 29 The system attempts to recover the DTC with a switch of activity between the two DTC units. Wait until system maintenance is complete.

If	Do
neither DTC unit returns to service	step 36
one DTC unit returns to service	step 46
both DTC units return to service	step 48

- 30 To busy the DTC, type
>BSY PM
and press the Enter key.

- 31 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:

PM DTC

critical (continued)

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an DTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packlet	Do
is present	step 32
is not present	step 35

- 32** Determine if the DTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

PM DTC critical (continued)

```
QueryPM config
UNIT 0   Slot 12: SX05AA
        PCMCIA Slotlet 0: SX06CA
        PCMCIA Slotlet 1: No packet
UNIT 1   Slot 12: SX05AA
        PCMCIA Slotlet 0: SX06CA
        PCMCIA Slotlet 1: No packet
```

	If the DTC is equipped with an	Do
	NT7X05 PRL card	step 33
	NTSX06 PRL packet	step 34
33	To load the DTC from the local image, type >LOADPM PM LOCAL IMAGE and press the Enter key.	
	If the load	Do
	passed	step 37
	failed	step 34
34		



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

	To load the DTC from the local loadfile, type >LOADPM PM LOCAL LOADFILE and press the Enter key.	
	If the load	Do
	passed	step 37
	failed	step 35
35	To load the DTC, type >LOADPM PM	

PM DTC critical (continued)

and press the Enter key.

	If the load	Do
	failed, and the system generated a card list	step 38
	failed, and the system did not generate a card list	step 47
	passed	step 37
36	To busy the DTC, type >BSY PM and press the Enter key.	
37	To return the DTC to service, type >RTS PM and press the Enter key.	
	If	Do
	the DTC failed to return to service and the system generated a card list	step 38
	one DTC unit returned to service	step 46
	both DTC units returned to service	step 48

At the equipment frame

- 38 Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Layout of DTC shelf" in this procedure for help to locate this card.

The MAP response in step 13 (when you complete this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

(Sheet 1 of 2)

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTAX74, NTSX05
Activity Dropped	NTMX77, NTAX74, NTSX05

PM DTC critical (continued)

(Sheet 2 of 2)

MAP response	Suspect cards
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05
Load Corruption	NT6X42, NTMX77, NTAX74, NTSX05
Load Failed	NTMX77, NTAX74, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTAX74, NTSX05

If you	Do
replace an NT6X42, NTMX77 or NTAX74 card	step 39
an NTSX05 card	step 40
replace a card other than listed here	step 44

At the MAP display

- 39** Use the information that you recorded in step 13 to load the active DTC unit. To load the active DTC unit from the local image on the NT7X05 or NTSX05 PRL card, type

>LOADPM ACTIVE LOCAL IMAGE

and press the Enter key.

If the load	Do
passed	step 42
failed	step 40

PM DTC
critical (continued)

40



DANGER
Possible service interruption
The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string}. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the active DTC unit from the local loadfile on the PRL card, type
>LOADPM ACTIVE LOCAL LOADFILE
and press the Enter key.

If the load	Do
passed	step 42
failed	step 41

41 To load the active DTC unit from the CM, type
>LOADPM ACTIVE
and press the Enter key.

If the load	Do
passed	step 42
failed	step 47

42 To query the DTC counters for the firmware load on the NTMX77, NTAX74, or NTSX05 type
>QUERYPM CNTRS
and press the Enter key.

Example of a MAP display for an DTC equipped with an NTMX77:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: ECL07BI
EProm Version: AB02
EEProm Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA
Unit 1:
Ram Load: ECL07BI
EProm Version: AB02
EEProm Load: Loadable: MX77NG03 , Executable: MX77NG03
UP:MX77AA
```

NTMX77 Firmware loadname

PM DTC

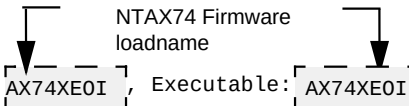
critical (continued)

Example of a MAP display for an DTC equipped with an NTAX74:

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: XLI07BI1
EPRom Version: AB02
EEPROM Load: Loadable: AX74XE0I, Executable: AX74XE0I
UP:AX74AA
Unit 1:
Ram Load: XLI07BI1
EPRom Version: AB02
EEPROM Load: Loadable: [AX74XE0I], Executable: [AX74XE0I]
UP:AX74AA

```

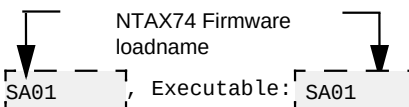


Example of a MAP display for an DTC equipped with an NTSX05:

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: [SA01], Executable: [SA01]
UP: SX05AA
IP: BX01

```



	If firmware	Do
	is correct	step 44
	is not correct	step 43
43	To load the NTMX77, NTAX74, NTSX05 firmware, type >LOADFW ACTIVE and press the Enter key.	
	If load	Do
	passed	step 44
	failed	step 47
44	To return the active DTC unit to service, type >RTS ACTIVE	

PM DTC
critical (end)

and press the Enter key.

If the unit	Do
does not return to service and you did not replace all the cards on the list of cards that have faults	step 45
does not return to service and you replaced all the cards on the list of cards that have faults	step 47
fails and the system does not generate a card list	step 47
returns to service	step 46

At the equipment frame

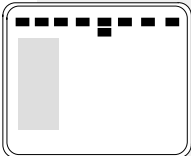
- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Design of DTC shelf" for help to locate this card.

If you replace	Do
an NTMX77, NTAX74, or NT6X42 card	step 39
an NTSX05 card	step 40
cards other than listed here	step 44

- 46** The DTC critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 48.
- 47** You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to attempt to clear this alarm.
- 48** The procedure is complete.

PM DTC major

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1DTC	.	.	.		.
					M					

Indication

DTC (preceded by a number) appears under the PM header of the alarm banner. The DTC indicates a major alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC major alarm.

Meaning

The DTC is in-service trouble (ISTb) for of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in-service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in-service

Result

The alarm does not affect service. A backup unit is not available in the DTC.

Common procedures

This procedure refers to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*

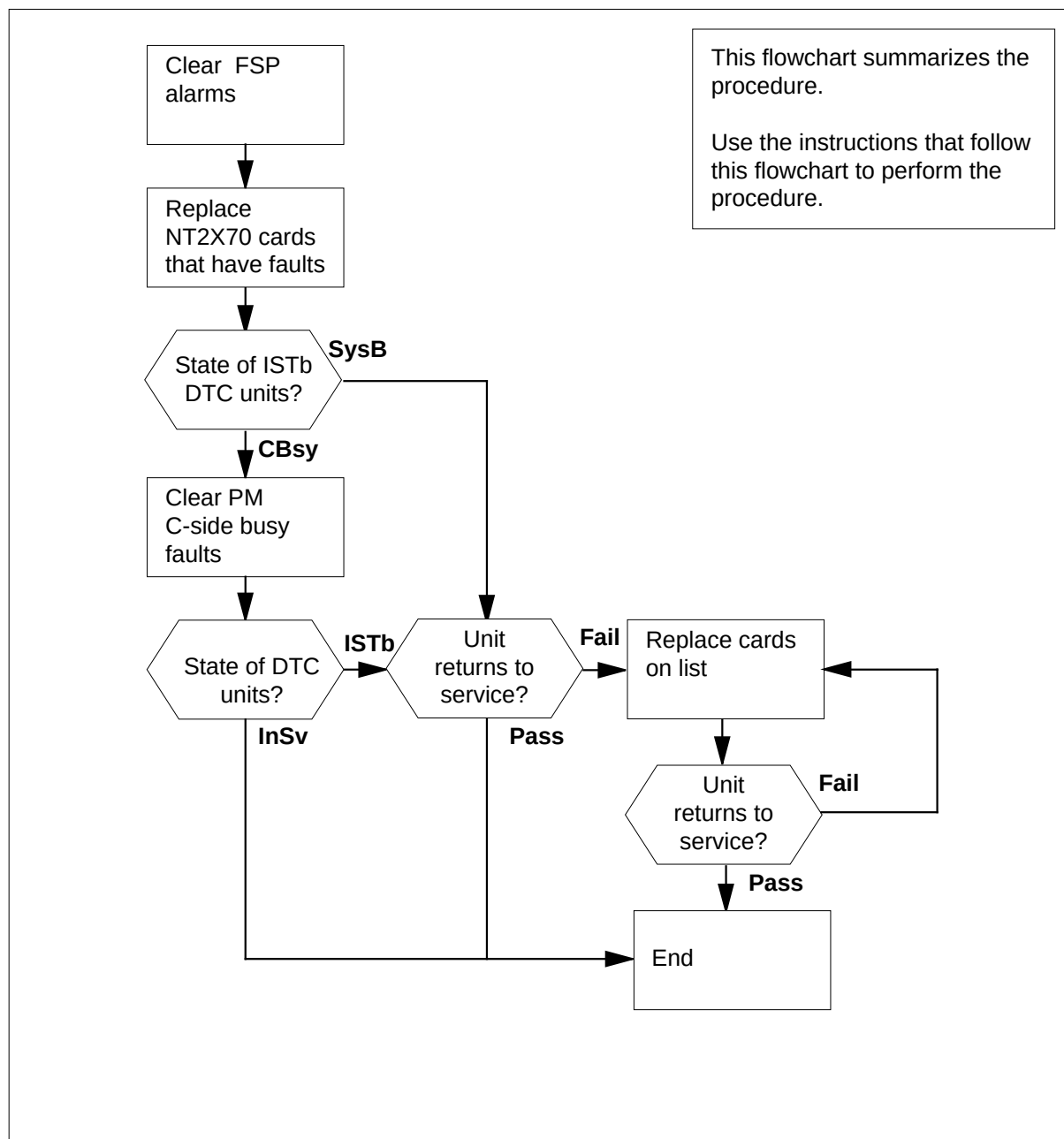
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM DTC major (continued)

Summary of clearing a PM DTC major alarm



PM DTC major (continued)

Layout of DTC shelf

Paddle boards		Cards	
25R		NT2X70 Power converter card	25F
24R		NT0X50 Filler faceplate	24F
23R		NT6X40 DS30 C-side interface card	23F
22R		NT6X40 DS30 C-side interface card	22F
21R		NT6X41 Speech bus formatter card	21F
20R	NTMX71 XPM+ terminator PB	NT6X42 Channel supervision message card	20F
19R		NT0X50 Filler Faceplate*	19F
18R		NT6X69 Message protocol and Tone card*	18F
17R		NT7X05 Peripheral/Remote Loader-16 Card	17F
16R		NT6X92 Universal tone receiver card*	16F
15R		NT6X92 Universal tone receiver card*	15F
14R		NT6X44 Time switch card	14F
13R		NT6X70 Continuity tone detector card*	13F
12R		NTSX05 SX05 processor card (Note 4) or NTMX77 Unified processor card or NTAX74 Cellular access processor (Note 2 & 3)	12F
11R		NT0X50 Filler faceplate	11F
10R		NT0X50 Filler faceplate	10F
09R		NT0X50 Filler faceplate	09F
08R		NT0X50 Filler faceplate	08F
07R		NT0X50 Filler faceplate	07F
06R		NT0X50 Filler faceplate	06F
05R		NT6X50 DS1 interface card	05F
04R		NT6X50 DS1 interface card	04F
03R		NT6X50 DS1 interface card	03F
02R		NT6X50 DS1 interface card	02F
01R		NT6X50 DS1 interface card	01F
← Rear		Front →	

Note 1: The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

Note 2: Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCI application with an XLI load.

Note 3: Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

Note 4: Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

PM DTC

major (continued)

Clearing a PM DTC major alarm

At the MAP terminal

- 1** To access the PM level of the MAP terminal, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

If	Do
an audible alarm rings	step 2
no audible alarm rings	step 3

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To display all the ISTb DTCs, type

>DISP STATE ISTB DTC

and press the Enter key.

Example of a MAP response:

ISTB DTC : 0

Note: If multiple DTCs are ISTb, select a DTC to work on. Record the number of the DTC.

- 4** Check the EXT header of the alarm banner for an FSP alarm.

If an FSP alarm	Do
is present	step 5
is not present	step 22

- 5** To locate the FSP alarm, type

>EXT; LIST FSP

and press the Enter key.

Example of a MAP response:

PM DTC major (continued)

FSPAISD

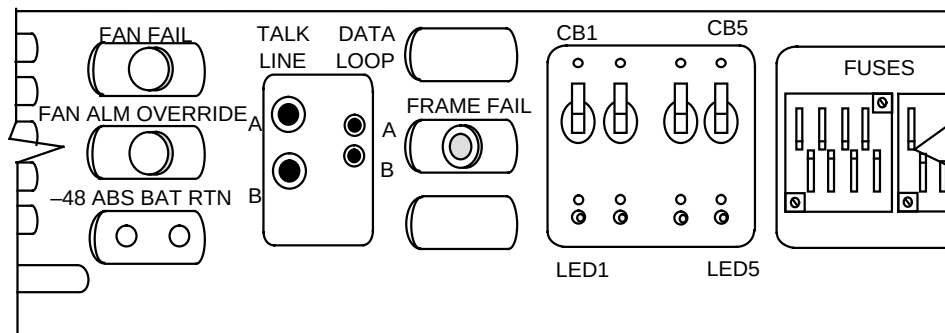
In this example, the alarm is an FSP alarm on Aisle D.

At the equipment aisle

- 6** Go to the aisle that you identified in step 5. A light identifies the end aisle alarm.

At the equipment frame

- 7** Identify the frame with the FSP alarm. Check the frame fail lamp on the frame supervisory panel (FSP) of the frame. The frame with the FSP alarm has an illuminated frame fail lamp. The following figure illustrates an FSP with an illuminated fail lamp.

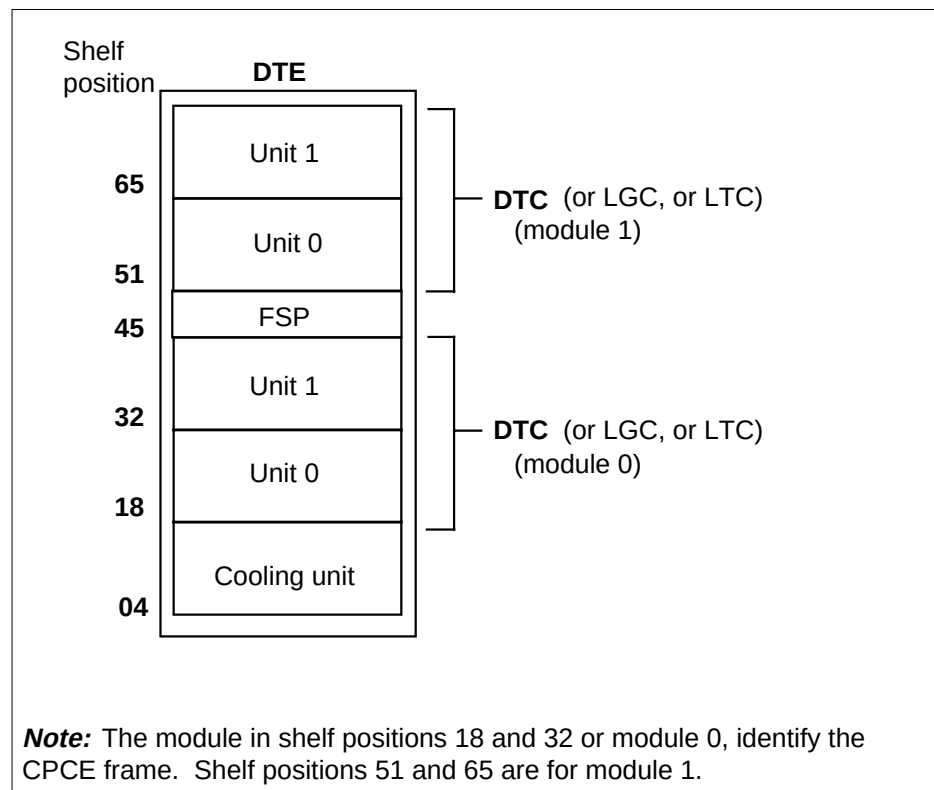


Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

- 8** The EXT FSP alarm can appear in a digital trunk equipment (DTE) frame. The following diagram is a DTE frame. The frame houses a DTC. The FSP alarm can appear in LTE or LGE frames. Identify the PMs that the frame contains. Refer to the following diagram for help.

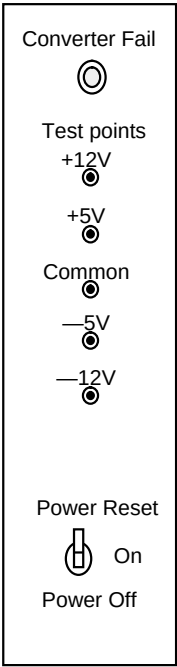
PM DTC

major (continued)



- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure *Design of DTC shelf* for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

PM DTC
major (continued)



If any LEDs	Do
are lit	step 10
are not lit	step 14

10 Note the DTC with the LED light on.

At the MAP display

11 To post the DTC, type
>PM; POST DTC dtc_no
and press the Enter key.
where
dtc_no
is the number (0 to 255) of the DTC that you recorded in step 3
Example of a MAP response:

PM DTC major (continued)

DTC 0 ISTb Links_00S: CSide 17, PSide 0
Unit0: Act InSv
Unit1: Inact CBsy

	If a Mtce indicator	Do
	displays next to either unit	step 12
	does not display	step 13
12	Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.	
	If the major alarm	Do
	remains	step 13
	changes	step 47
	clears	step 49
13	Determine if the DTC is the same as the DTC that you identified in step 10.	
	If the DTC	Do
	is different	step 14
	is the same	step 15
14	Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 4.	
15	To busy the SysB DTC unit, type >BSY UNIT unit_no and press the Enter key. where unit_no is the number (0 to 1) of the DTC unit	

At the equipment frame

- 16** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this step.

At the MAP terminal

- 17** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local

PM DTC major (continued)

load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 1:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

	If the PRL card or packet	Do
	is present	step 18
	is not present	step 21
18	Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card.	
	If the DTC is equipped with an	Do
	NT7X05 PRL card	step 19
	NTSX06 PRL packet	step 20

PM DTC
major (continued)

- 19** To load the DTC from the local image, type
>LOADPM UNIT unit_no LOCAL IMAGE
and press the Enter key.
where
unit_no
is the number (0 to 1) of the DTC unit

If the load	Do
passed	step 36
failed	step 20

20



DANGER
Possible service interruption
The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need the NOPATCH option of the loadfile.

- To load the DTC from the local loadfile, type
>LOADPM UNIT unit_no LOCAL LOADFILE
and press the Enter key.
where
unit_no
is the number (0 to 1) of the DTC unit

If the load	Do
passed	step 36
failed	step 21

- 21** To load the DTC unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where

PM DTC major (continued)

unit_no
is the number (0 to 1) of the DTC unit

	If the load	Do
	failed, and the system generated a card list	step 37
	failed, and the system did not generate a card list	step 48
	passed	step 36
22	To post the DTC, type >POST DTC dtc_no and press the Enter key. <i>where</i> dtc_no is the number (0 to 255) of the DTC that you recorded in step 3 <i>Example of a MAP response:</i> <pre> DTC 0 InSv Links_00S: CSide 20, PSide 0 Unit0: Act InSv Unit1: Inact SysB </pre>	
	If an Mtce indicator	Do
	displays next to either unit	step 23
	does not display	step 24
23	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this step.	
	If the major alarm	Do
	remains	step 24
	changes	step 47
	clears	step 49
24	Determine the maintenance state of each DTC unit.	
	If one unit	Do
	is CBSy and the other unit is InSv or ISTb	step 25

PM DTC major (continued)

	If one unit	Do
	is SysB and the other unit is InSv or ISTb	Work on the SysB unit. Go to step 26.
25	Go to the common procedure <i>Clearing PM C-side faults</i> in this document. Complete the procedure and return to this step.	
	If the DTC	Do
	remains ISTb because one unit is SysB and the other is InSv or ISTb	Work on the SysB unit. Go to step 26.
	returns to service	step 49
26	To query the DTC for fault indications, type >QUERYPM FLT and press the Enter key. <i>Example of a MAP response:</i> Activity dropped	
27	Record the MAP response.	
	If the MAP response	Do
	is SWACT In Progress	step 28
	is Load Corruption	step 29
	is Load Failed	step 29
	is Distributed Data Loading Failed	step 29
	is Activity dropped	step 29
	is other than listed here	step 35
28	The system attempts to recover the DTC with a switch of activity between the two DTC units. Wait until system maintenance is complete.	
	If the DTC	Do
	does not return to service	step 35
	returns to service	step 49

PM DTC major (continued)

- 29 To busy the DTC unit, type
>BSY UNIT unit_no
 and press the Enter key.
- 30 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
 Flash not datafilled. QueryPm files invalid

Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 0:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packet	Do
is provisioned	step 31
is not provisioned	step 34

- 31 Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

PM DTC

major (continued)

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
UNIT 1   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
```

If the DTC is equipped with an	Do
NT7X05 PRL card	step 32
NTSX06 PRL packlet	step 33

- 32** To load the DTC from the local image, type
>LOADPM UNIT unit_no LOCAL IMAGE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the DTC unit

If the load	Do
passed	step 36
failed	step 33

33



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need the NOPATCH option of the loadfile.

PM DTC major (continued)

To load the DTC from the local loadfile, type

>LOADPM UNIT unit_no LOCAL LOADFILE

and press the Enter key.

where

unit_no

is the number (0 to 1) of the DTC unit

	If the load	Do
	passed	step 36
	failed	step 34
34	To load the DTC unit, type >LOADPM UNIT unit_no and press the Enter key.	
	If the load	Do
	failed, and the system generated a card list	step 37
	failed, and the system did not generate a card list	step 48
	passed	step 36
35	To busy the DTC unit that has faults, type >BSY UNIT unit_no and press the Enter key.	
	where unit_no is the number (0 to 1) of the DTC unit	
36	To return the DTC unit to service, type >RTS UNIT unit_no and press the Enter key.	
	where unit_no is the number (0 to 1) of the DTC unit	
	If the DTC unit	Do
	failed, and the system generated a card list	step 37

PM DTC

major (continued)

If the DTC unit	Do
failed, and the system did not generate a card list	step 48
passed	step 49

At the equipment frame

- 37** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Design of DTC shelf" in this procedure for help to locate this card.

The MAP response in step 11 (if you complete this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTAX74, NTSX05
Activity Dropped	NTMX77, NTAX74, NTSX05
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05
Load Corruption	NT6X42, NTMX77, NTAX74, NTSX05
Load Failed	NTMX77, NTAX74, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTAX74, NTSX05

If the card you	Do
replace is an NT6X42, NTMX77, NTAX74, or NTSX05 card	step 38
is other than listed here	step 45

PM DTC major (continued)

At the MAP terminal

- 38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 1:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packlet	Do
is present	step 39
is not present	step 42

- 39** Determine if the DTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

PM DTC

major (continued)

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0    Request invalid. Unit does not have SX05 processor
UNIT 1    Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0    Slot 12: SX05AA
          PCMCIA Slotlet 0: SX06CA
          PCMCIA Slotlet 1: No packet
UNIT 1    Slot 12: SX05AA
          PCMCIA Slotlet 0: SX06CA
          PCMCIA Slotlet 1: No packet
```

If the DTC is equipped with an	Do
NT7X05 PRL card	step 40
NTSX06 PRL packet	step 41

- 40** Use the information recorded in step 11 to load the inactive DTC unit . To load the inactive DTC unit from the local image on the NT7X05 PRL card, type

>LOADPM UNIT unit_no LOCAL IMAGE

and press the Enter key.

where

unit_no

is the number of the inactive DTC unit recorded in step 11

If the load	Do
passed	step 43
failed	step 41

- 41**



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]]. When you use this parameter, the loadfile named in the parameter has not been patched. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

PM DTC major (continued)

To load the inactive DTC unit from the local loadfile on the PRL card, type

>LOADPM UNIT unit_no LOCAL LOADFILE

and press the Enter key.

where

unit_no

is the number of the inactive DTC unit that you recorded in step 11

If the load	Do
passed	step 43
failed	step 42

42 To load the inactive DTC unit from the CM, type

>LOADPM UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the inactive DTC unit recorded in step 11

If the load	Do
passed	step 43
failed	step 48

43 To query the DTC counters for the firmware load on the NTMX77, NTAX74, or NTSX05 type

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP display for an NTMX77:

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

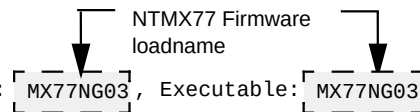
Unit 1:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA



Example of a MAP display for an NTAX74:

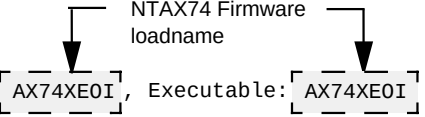
PM DTC

major (continued)

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: XLI07BI1
EProm Version: AB02
EEPROM Load: Loadable: AX74XE0I, Executable: AX74XE0I
UP:AX74AA
Unit 1:
Ram Load: XLI07BI1
EProm Version: AB02
EEPROM Load: Loadable: [AX74XE0I], Executable: [AX74XE0I]
UP:AX74AA

```

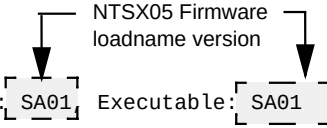


Example of a MAP display for a DTC equipped with an NTSX05:

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EProm Version: AC01
EEPROM Load: Loadable: [SA01], Executable: [SA01]
UP: SX05AA
IP: BX01

```



If firmware	Do
is correct	step 45
is not correct	step 44

- 44** To load the NTMX77, NTAX74, or NTSX05 firmware, type

>LOADFW UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the inactive DTC unit that you recorded in step 11

If the load	Do
passed	step 45
failed	step 48

- 45** To return the DTC unit to service, type

>RTS UNIT unit_no

and press the Enter key.

**PM DTC
major (end)**

where

unit_no

is the number of the inactive DTC unit that you recorded in step 11

If the unit	Do
does not return to service and you did not replace all the cards on the list of cards that have faults	step 46
does not return to service and you replaced all the cards on the list of cards that have faults	step 48
fails, and the system does not generate a card list	step 48
returns to service	step 49

At the equipment frame

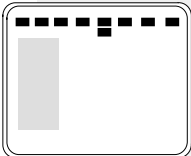
- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *Design of DTC shelf* for help to locate this card.

If you	Do
replace an NTAX74, NTMX77, NTSX05 or NT6X42 card	step 38
replace cards other than listed here	step 45

- 47** The DTC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

PM DTC minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1DTC	.	.	.		.

Indication

DTC (preceded by a number) appears under the PM header of the alarm banner. The DTC indicates a minor alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC minor alarm.

Meaning

The DTC is in-service trouble (ISTb) for one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in-service
- one unit is ISTb and one unit is manual busy
- one unit is in-service and one unit is manual busy
- both units are in-service with P-side links or C-side links out-of-service

Result

The alarm does not affect service.

Common procedures

The procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

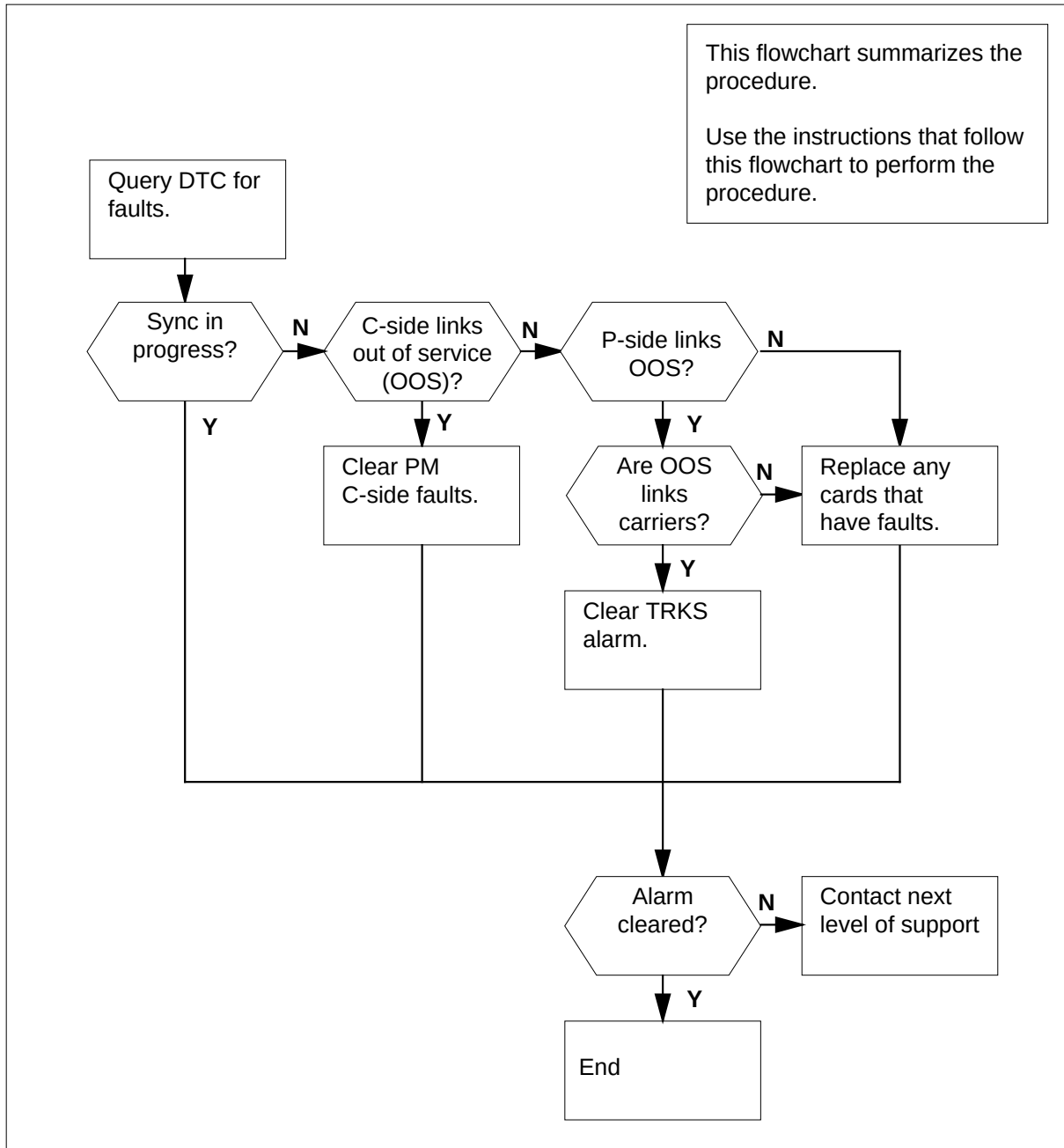
Do not go to the common procedures unless the step-action procedure directs you to go.

PM DTC minor (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Summary of clearing a PM DTC minor alarm



PM DTC

minor (continued)

Layout of a DTC shelf

Paddle boards		Cards	
25R		NT2X70 Power converter card	25F
24R		NT0X50 Filler faceplate	24F
23R		NT6X40 DS30 C-side interface card	23F
22R		NT6X40 DS30 C-side interface card	22F
21R		NT6X41 Speech bus formatter card	21F
20R	NTMX71 XPM+ terminator PB	NT6X42 Channel supervision message card	20F
19R		NT0X50 Filler Faceplate*	19F
18R		NT6X69 Message protocol and Tone card*	18F
17R		NT7X05 Peripheral/Remote Loader-16 Card	17F
16R		NT6X92 Universal tone receiver card*	16F
15R		NT6X92 Universal tone receiver card*	15F
14R		NT6X44 Time switch card	14F
13R		NT6X70 Continuity tone detector card*	13F
12R		NTSX05 SX05 processor card (Note 4) or NTMX77 Unified processor card or NTAX74 Cellular access processor (Note 2 & 3)	12F
11R		NT0X50 Filler faceplate	11F
10R		NT0X50 Filler faceplate	10F
09R		NT0X50 Filler faceplate	09F
08R		NT0X50 Filler faceplate	08F
07R		NT0X50 Filler faceplate	07F
06R		NT0X50 Filler faceplate	06F
05R		NT6X50 DS1 interface card	05F
04R		NT6X50 DS1 interface card	04F
03R		NT6X50 DS1 interface card	03F
02R		NT6X50 DS1 interface card	02F
01R		NT6X50 DS1 interface card	01F
← Rear		Front →	

Note 1: The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

Note 2: Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCI application with an XLI load.

Note 3: Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

Note 4: Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

PM DTC minor (continued)

Clearing a PM DTC minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type

>MAPCI ; MTC : PM

and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If	Do
an audible alarm rings	step 2
no audible alarm rings	step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb DTCs, type

>DISP STATE ISTB DTC

and press the Enter key.

Example of a MAP response:

ISTb DTC : 0

Note: If multiple DTCs are ISTb select one DTC to work on. Repeat this procedure for each DTC that is ISTb.

Record the DTC number.

- 4 To post the DTC, type

>POST DTC dtc_no

and press the Enter key.

where

dtc_no

is the number (0 to 255) of the DTC you recorded in step 3.

Example of a MAP response:

PM DTC minor (continued)

	DTC 0 ISTb Links_00S: CSide 0, PSide 0
	Unit0: Act InSv
	Unit1: Inact ISTb Mtce
	If a Mtce flag Do
	appears next to either unit step 5
	does not appear step 6
5	Perform the correct procedure in "Monitoring system maintenance" in this document. Complete the procedure and return to this step.
	If the DTC minor alarm Do
	remains step 6
	changes step 35
	clears step 36
6	Select a DTC unit to recover.
	If Do
	one unit is ISTb and one unit is InSv step 7
	both units are ISTb Work on the inactive unit and go to step 11.
	one unit is ManB and one unit is ISTb or InSv Work on the manual busy unit and go to step 11.
7	Determine if the ISTb unit is active or inactive.
	If the ISTb unit Do
	is active step 8
	is inactive Work on the in-service trouble unit and go to step 11.

PM DTC minor (continued)

8

**WARNING****Possible loss of service**

Confirm a cold SWACT during a period of low traffic. If you confirm a cold SWACT during a period of high traffic, the calls that the LCME handles will drop.

To switch the activity of the units, type

>SWACT

and press the Enter key.

The switch determines the requirement of a cold SWACT or a warm SWACT. The switch displays a confirmation prompt for the selected SWACT.

If the switch of activity	Do
cannot continue	step 9
can continue	step 10

9

To reject the prompt, type

>NO

and press the Enter key.

The system stops the switch of activity. Go to step 34.

10

To confirm the switch of activity, type

>YES

and press the Enter key.

The switch changes activity between the active unit and the inactive unit. An MTCE flag appears during the change of activity. Continue after the flag disappears.

If the MAP response	Do
is SWACT Passed	Work on the inactive unit and go to step 11.
is SWACT failed Reason: XPM SWACTback	step 34
is SWACT refused by SWACT controller	step 34

PM DTC
minor (continued)

- 11** To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

Note: Multiple causes can be present for the in-service condition of a DTC. The DTC and the DTC units remain ISTb until all the in-service trouble conditions clear.

If the MAP response	Do
is Dynamic data sync in progress	step 12
is Superframe sync in progress	step 12
is CLASS Modem Resource Card 6X78 out of service	step 13
is CMR Load not present	step 16
is Static data mismatch with CC	step 19
is P-side links out of service	step 21
is C-side links out of service	step 31
is other than listed here	step 34

- 12** Wait 5 minutes for the system to return the DTC to service.

If the DTC minor alarm	Do
clears	step 36
does not clear	step 34

PM DTC minor (continued)

13

**CAUTION****Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR unit, type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the DTC unit (0 or 1) that contains the CMR card.

14 To test the CMR card, type

>TST UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the DTC unit (0 or 1) that contains the CMR card.

If the TST command	Do
fails	step 15
passes	step 18

At the equipment frame

15 Perform the correct procedure in *Card Replacement Procedures* to replace the CMR card (NT6X78). Complete the procedure and go to step 17.

At the MAP display

16 To manually busy the CMR card, type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the DTC unit (0 or 1) that contains the CMR card.

PM DTC minor (continued)

- 17** To load the CMR card, type
>LOADPM UNIT unit_no CMR
 and press the Enter key.
where
unit_no
 is the number of the DTC unit (0 or 1) that contains the CMR card.

If the LOADPM command	Do
passes	step 18
fails, and you replaced the CMR card	step 34
fails, and you did not replace the CMR card	step 15

- 18** To return the CMR card to service, type
>RTS UNIT unit_no CMR
 and press the Enter key.
where
unit_no
 is the number of the DTC unit (0 or 1) that contains the CMR card.

If the RTS command	Do
passes, and the DTC returns to service	step 36
passes, and the DTC does not return to service	step 33
fails	step 34

19



CAUTION

Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

PM DTC minor (continued)

To manually busy the inactive in-service trouble DTC unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the DTC unit (0 or 1)

- 20** To return the DTC unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the DTC unit (0 or 1)

If the RTS command	Do
passes, and the DTC returns to service	step 36
passes, and the DTC does not re-turn to service	step 33
fails	step 34

- 21** To identify the out-of-service P-side links, type

>TRNSL P

and press the Enter key.

Example of a MAP response:

Link 0: Carrier of Class - Timing;Status:Offl

Link 1: Carrier of Class - Trunk ;Status:OK

Link 18: Carrier of Class - Trunk ;Status:OK

Link 19: Carrier of Class - Trunk ;Status:OK

Note: Links 2 to 17 do not appear in this example.

- 22** Record the number and state of each P-side link that is out-of-service.

Note: P-side links with the OK status are in-service. Any other status indicates a P-side link that is out-of-service. The system can identify P-side links in the MAP display as a CARRIER.

If the out-of-service links are	Do
carriers	step 23

PM DTC minor (continued)

	If the out-of-service links are	Do
	links	step 24
23	Clear the TRKS alarm. Perform the correct procedure in this document. Complete the procedure and return to this step.	
	If the DTC minor alarm	Do
	clears	step 36
	does not clear	step 34
24	Choose a link to work on.	
	If the link	Do
	is SysB	step 25
	is ManB	step 26
25	To manually busy the link, type >BSY LINK link_no and press the Enter key. <i>where</i> link_no is the number of the link (0 to 19)	
26	To test the link, type >TST LINK link_no and press the Enter key. <i>where</i> link_no is the number of the link (0 to 19)	
	If the TST command	Do
	passes	step 27
	fails, and the system generates a card list	step 28
	fails, and the system does not generate a card list	step 34
27	To return the link to service, type >RTS LINK link_no and press the Enter key. <i>where</i>	

PM DTC minor (continued)

link_no
is the number of the link (0 to 63)

If the RTS command	Do
fails, and the system generates a card list	step 28
fails, and the system does not generate a card list	step 34
passes, and other out-of-service links are present	step 24
passes, and the DTC remains ISTb	step 34
passes, and the DTC minor alarm clears	step 36

At the equipment frame

- 28** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

At the MAP

- 29** To return the link to service, type

>RTS LINK link_no

and press the Enter key.

where

link_no
is the number of the link (0 to 63)

If the RTS command	Do
fails, and you did not replace all the cards on the list	step 30
fails, and you replaced all the cards on the list	step 34
passes, and other out-of-service links are present	step 24
passes, and the DTC remains ISTb	step 34
passes, and the DTC minor alarm clears	step 36

- 30** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

- 31** Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.

- 32** To post the DTC, type

>PM;POST DTC dtc_no

and press the Enter key.

where

PM DTC

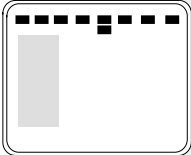
minor (end)

dtc_no
is the number of the DTC (0 to 255)

	If the DTC	Do
	is InSv	step 36
	is ISTb, and one unit is ISTb or CBsy	step 33
	is other than listed here	step 34
33	To determine the cause of the in-service trouble condition, type >QUERYPM FLT and press the Enter key. Note: Multiple causes can be present for the in-service trouble condition of a DTC. The DTC and the DTC units remain ISTb until all in-service trouble conditions clear.	
	If the MAP response	Do
	is Dynamic data sync in progress	step 12
	is Superframe sync in progress	step 12
	is CLASS Modem Resource Card 6X78 out of service	step 13
	is CMR Load not present	step 16
	is Static data mismatch with CC	step 19
	is P-side links out of service	step 21
	is C-side links out of service	step 31
	indicates a fault that you cleared during this procedure	step 34
	is other than listed here	step 34
34	You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to clear this alarm. Go to step 36.	
35	The DTC minor alarm changed to a different type of alarm. Refer to the correct procedure in this document to clear the alarm.	
36	The procedure is complete.	

PM EIU critical

Alarm display

	CM	MS	IOD	Net	PM 1EIU *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

At the MTC level of the MAP display, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a critical alarm for the Ethernet interface unit (EIU).

Meaning

A minimum of one EIU is system busy, system busy not accessible, or in-service trouble not accessible.

The number under the PM header of the alarm banner indicates the number of EIUs affected.

Result

Communication does not occur between the switch and the local area network (LAN) or wide area network (WAN) if each application has only one EIU. The EIU applications include the CCS7 message detail recording (MDR7) and the service management system (SMS). The presence of more than one EIU for each application does not affect service.

Common procedures

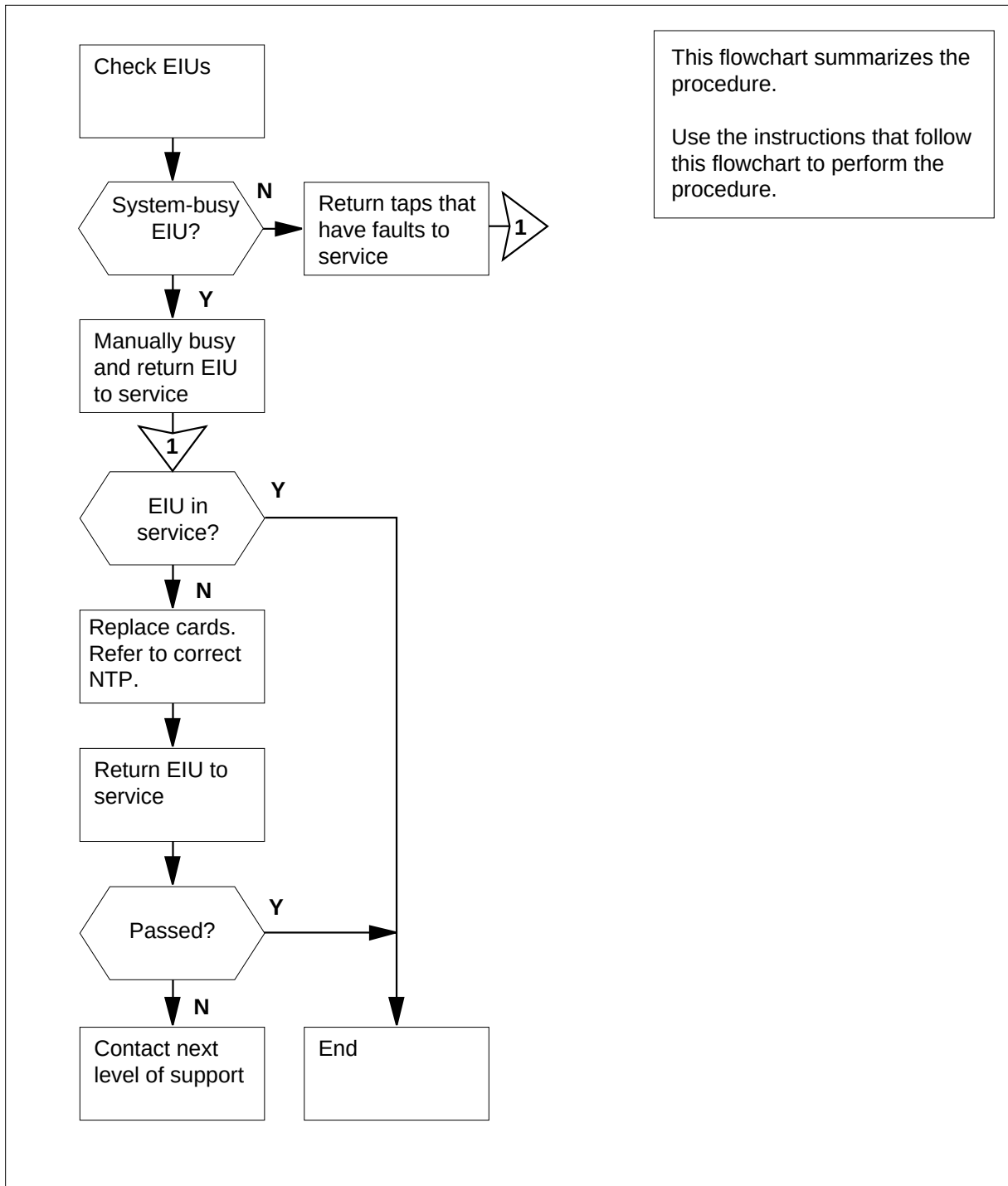
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM EIU critical (continued)

Summary of clearing a PM EIU critical alarms



PM EIU critical (continued)

Clearing a PM EIU critical alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI ; MTC ; PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	0	0	0	0	39

- 2 To post the EIUs that are system busy, type

>POST EIU SysB

and press the Enter key.

Example of a MAP display:

EIU 131 SysB Rsvd

Note: In the example of the EIU MAP display, the EIU state is SysB. The EIU state appears on the right of the number 131.

If the posted set	Do
contains SysB EIUs	step 3
is empty	step 24

- 3 Record the number of the EIU.

Note: In the example in step 2, the EIU number is 131.

- 4 Determine the state of the posted EIU.

If the posted EIU	Do
is SysB (NA)	step 29
is SysB	step 5

- 5 To force the EIU to busy, type

>BSY FORCE

PM EIU critical (continued)

and press the Enter key.

If the response	Do
is Bsy EIU eiu_no re- quires confirmation because the action may isolate the SuperNode from the nodes on the LAN	step 6
is EIU eiu_no BSY Passed	step 7

- 6** To confirm the command, type
>YES

and press the Enter key.

- 7** To test the EIU, type
>TST UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the EIU unit (0 or 1)

Example of a MAP response:

```
EIU      110 ManB      Rsvd
          Tst
          EIU 110 TST Failed
```

```
Site FLr RPos Bay_id Shf Description Slot EqPEC
HOST 01  A02  LIM   1 02  IPF           13 EX22BB FRNT
```

If the TST command	Do
passed	step 11
failed, and the system generated a card list	step 8
failed, and the system did not generate a card list	step 18

- 8** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

PM EIU critical (continued)

9	To reset the EIU, type >PMRESET and press the Enter key.								
	<table border="0" style="width: 100%;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">If the PMRESET command</th> <th style="text-align: left; border-bottom: 1px solid black;">Do</th> </tr> <tr> <td>passed</td> <td>step 11</td> </tr> <tr> <td>failed, and the system generated a card list</td> <td>step 10</td> </tr> <tr> <td>failed, and the system did not generate a card list</td> <td>step 10</td> </tr> </table>	If the PMRESET command	Do	passed	step 11	failed, and the system generated a card list	step 10	failed, and the system did not generate a card list	step 10
If the PMRESET command	Do								
passed	step 11								
failed, and the system generated a card list	step 10								
failed, and the system did not generate a card list	step 10								
10	To load the EIU, type >LOADPM and press the Enter key.								
	<table border="0" style="width: 100%;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">If the LOADPM command</th> <th style="text-align: left; border-bottom: 1px solid black;">Do</th> </tr> <tr> <td>passed</td> <td>step 11</td> </tr> <tr> <td>failed, and the system generated a card list</td> <td>step 12</td> </tr> <tr> <td>failed, and the system did not generate a card list</td> <td>step 97</td> </tr> </table>	If the LOADPM command	Do	passed	step 11	failed, and the system generated a card list	step 12	failed, and the system did not generate a card list	step 97
If the LOADPM command	Do								
passed	step 11								
failed, and the system generated a card list	step 12								
failed, and the system did not generate a card list	step 97								
11	To return the EIU to service, type >RTS and press the Enter key.								
	<table border="0" style="width: 100%;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">If the RTS command</th> <th style="text-align: left; border-bottom: 1px solid black;">Do</th> </tr> <tr> <td>passed</td> <td>step 114</td> </tr> <tr> <td>failed, and the system generated a card list</td> <td>step 12</td> </tr> <tr> <td>failed, and the system did not generate a card list</td> <td>step 97</td> </tr> </table>	If the RTS command	Do	passed	step 114	failed, and the system generated a card list	step 12	failed, and the system did not generate a card list	step 97
If the RTS command	Do								
passed	step 114								
failed, and the system generated a card list	step 12								
failed, and the system did not generate a card list	step 97								
12	Replace the first card in the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.								
13	To reset the EIU, type >PMRESET								

PM EIU critical (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 17
failed	step 14

- 14** To load the EIU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 17
failed, and you did not replace all cards that you recorded on the list	step 15
failed, and you replaced all cards you recorded on the list	step 97

- 15** Replace the first card in the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 16** Go to step 13.

- 17** To return the EIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 114
failed	step 97

- 18** To reset the EIU, type
>PMRESET
and press the Enter key.

If the PMRESET command	Do
passed	step 20
failed, and the system generated a card list	step 19

PM EIU critical (continued)

	If the PMRESET command	Do
	failed, and the system did not generate a card list	step 22
19	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list. Go to step 10.	
20	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 114
	failed, and the system generated a card list	step 21
	failed, and the system did not generate a card list	step 97
21	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list. Go to step 12.	
22	To load the EIU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 11
	failed, and the system generated a card list	step 23
	failed, and the system did not generate a card list	step 97
23	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list. Go to step 12.	
24	To post the in-service trouble EIUs, type >POST EIU ISTB and press the Enter key.	

PM EIU critical (continued)

Example of a MAP response:

EIU 131 ISTb

	If posted EIU	Do
	is ISTb (NA)	step 28
	is ISTb	step 25
25	To scroll to the next in-service trouble EIU in the posted set, type >NEXT and press the Enter key.	
26	Determine if the posted EIU is in-service trouble not accessible (NA).	
	If the posted EIU	Do
	is ISTb (NA)	step 28
	is ISTb	step 27
27	Determine if you reached the end of the posted set.	
	If you	Do
	reached the end of the posted set	step 113
	did not reach the end of the posted set	step 25
28	To determine which link interface module (LIM) associates with in-service trouble EIU, type >QUERYPM and press the Enter key.	
	<i>Example of a MAP response:</i>	

PM EIU critical (continued)

```
PM type:EIU PM No.:110  Status: ISTb(NA)
LIM: 1  Shelf:2  Slot: 12  EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
ISTB conditions:
  Msg Channel #0 NA
  Msg Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States:      InSv      InSv
Auditing :       No       No
Msg Channels:    NA       NA
TAP 2 :          S(NA)    M(NA)
```

Go to step 30.

- 29** To determine which LIM associates with the system-busy not accessible EIU, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

```
PM type:EIU PM No.:110  Status: SysB(NA)
LIM: 1  Shelf:2  Slot: 12  EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
  Msg Channel #0 NA
  Msg Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States:      InSv      InSv
Auditing :       No       No
Msg Channels:    NA       NA
TAP 2 :          S(NA)    M(NA)
```

- 30** Record the number of the LIM that associates with the system-busy not accessible EIU.

Note: In the example in step 28 and step 29, the LIM number is 1. The LIM number appears on the second line of the response. The LIM number appears on the right of the LIM header.

- 31** To post the LIM for the EIU, type

>POST LIM lim_no

and press the Enter key.

where

PM EIU

critical (continued)

lim_no

is the number of the LIM (0 to 16)

- 32** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTb
Unit0:  ISTb
Unit1:  InSv
Tap:    0  4  8  12  16  20  24  28  32
FBus0:  ManB
FBus1:  InSv
Links_00S  Taps_00S
.          19
.          2
BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
...M .I.. .S.. .... ---- ---- ---- ----
```

Note: In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap also can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

- 33** Determine the state of both LIM units and both F-buses (0 and 1).

Note: Make sure that both LIM units are in service or in-service trouble. Make sure that both F-buses are in service or in-service trouble.

If the state of both LIM units and both F-buses	Do
is InSv or ISTb	step 36
is other than listed here	step 34

- 34** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedures and return to this point.

- 35** Go to step 1.

- 36** To determine the F-bus taps that associate with the EIU, type

>TRNSL fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

Example of a MAP response:

PM EIU

critical (continued)

```
LIM 1   FBus   0 Tap   0   is on LIU7 101
LIM 1   FBus   0 Tap   1   is unequipped
LIM 1   FBus   0 Tap   2   is on EIU 110
LIM 1   FBus   0 Tap   3   is on LIU7 104
```

37 Record the EIU tap number for the EIU.

38 Determine the state of the F-bus for the EIU.

Note: The tap number that you recorded in step 37 applies to both F-bus 0 and F-bus 1.

If	Do
both F-bus taps are M	step 43
both F-bus taps are S	step 39
one F-bus tap is M and the other F-bus tap is S	step 41

39 To quit from the F-bus level, type

>QUIT

and press the Enter key.

40 To post the EIU, type

>POST EIU eiu_no

and press the Enter key.

where

eiu_no

is the number of the EIU (0 to 215)

Go to step 5.

41 Work on the manually-busy EIU tap first.

Go to step 44.

42 To force the F-bus tap for the EIU to busy, type

>BSY FBUS fbus_no tap_no FORCE

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 35)

Go to step 45.

43 Choose one of the manually-busy taps on F-bus 0 or 1 to work on.

PM EIU
critical (continued)

- 44** Determine from office records or operating company personnel why the tap is manually busy.

If you	Do
can return the F-bus tap to service	step 45
cannot return the F-bus tap to service	step 114

- 45** To return the first F-bus tap for the EIU to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 85
failed. The system generated a card list. Both EIU taps are out of service	step 54
failed and the system did not generate a card list.	step 86
failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible.	step 86

- 46** Determine if you unseated and seated again the NTEX22 and NT9X84 EIU cards during this procedure.

If you	Do
unseated and seated again the two EIU cards	step 113

PM EIU critical (continued)

	If you	Do
	did not seat and unseat the two EIU cards	step 93
47	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.	
48	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
49	To post the EIU, type >POST EIU eiu_no and press the Enter key. <i>where</i> ei_u_no is the number of the EIU (0 to 511)	
50	To force the EIU to busy, type >BSY FORCE and press the Enter key. <i>Example of a MAP response:</i> Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):	
51	To confirm the command, type >YES and press the Enter key.	
52	To reset the EIU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 84
	failed	step 53
53	To load the EIU, type >LOADPM	

PM EIU

critical (continued)

and press the Enter key.

	If the LOADPM command	Do
	passed	step 84
	failed	step 76
54	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.	
55	Determine the state of the F-bus taps for the EIU.	
	If	Do
	both EIU taps are M	step 56
	at least one EIU tap is S	step 72
56	Replace the first card in the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
57	To post the LIM associated for the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 16)	
58	To access the F-bus level of the MAP display, type >FBUS and press the Enter key.	
59	To return the first F-bus tap for the EIU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. <i>where</i> fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35)	
	If the RTS command	Do
	passed	step 64

PM EIU critical (continued)

	If the RTS command	Do
	failed, and you did not replace all cards that you recorded on the list	step 60
	failed, and you replaced all cards that you recorded on the list	step 83
60	Replace the first card in the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
61	To post the LIM for the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 16)	
62	To access the F-bus level of the MAP display, type >FBUS and press the Enter key.	
63	Go to step 59.	
64	To return the second F-bus tap for the EIU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. <i>where</i> fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35)	
	If the RTS command	Do
	passed	step 65
	failed	step 65
65	To quit from the F-bus level, type >QUIT and press the Enter key.	
66	To post the EIU, type >POST EIU eiu_no and press the Enter key.	

PM EIU
critical (continued)

where

ei_u_no
is the number of the EIU (0 to 511)

- 67** To reset the EIU, type
>PMRESET
and press the Enter key.

If the PMRESET command	Do
passed	step 69
failed	step 68

- 68** To load the EIU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 69
failed, and you did not replace all cards that you recorded on the list	step 70
failed, and you replaced all cards that you recorded on the list	step 82

- 69** To return the EIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 114
failed, and you did not replace all cards that you recorded on the list	step 70
failed, and you replaced all cards that you recorded on the list	step 97

- 70** Replace the first card in the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

PM EIU critical (continued)

- 71 Go to step 67.
- 72 To quit from the F-bus level of the MAP display, type
>QUIT
and press the Enter key.
- 73 To post the EIU, type
>POST EIU eiu_no
and press the Enter key.
where
ei_u_no
is the number of the EIU (0 to 511)
- 74 To force the EIU to busy, type
>BSY FORCE
and press the Enter key.
Example of a MAP response:
- Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):
- 75 To confirm the command, type
>YES
and press the Enter key.
- 76 Replace the first card in the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 77 To reset the EIU, type
>PMRESET
and press the Enter key.
- | If the PMRESET | Do |
|----------------|---------|
| passed | step 84 |
| failed | step 78 |
- 78 To load the EIU, type
>LOADPM
and press the Enter key.
- | If the LOADM command | Do |
|----------------------|---------|
| passed | step 84 |

PM EIU critical (continued)

	If the LOADM command	Do
	failed, and you did not replace all cards that you recorded on the list	step 79
	failed, and you replaced all cards that you recorded on the list	step 83
79	Replace the first card in the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
80	Go to step 77.	
81	To return the second F-bus tap for the EIU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. where fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35)	
	If the RTS command	Do
	passed. The other tap for EIU is out of service	step 82
	passed. The other tap for the EIU is in service	step 88
	failed. The system generated a card list. Both EIU taps are out of service	step 54
	failed, the system generated a card list, and one EIU tap is in service	step 47
	failed. The system did not generate a card list.	step 46

PM EIU critical (continued)

	If the RTS command	Do
	failed. The system did not generate a card. The response is Return to Service failed - local maintenance not accessible.	step 46
82	Determine if one EIU critical alarm cleared.	
	If one EIU critical alarm	Do
	cleared	step 114
	did not clear. You are working on an ISTb (NA) EIU	step 93
	did not clear, and you are working on a SysB (NA) EIU is in progress	step 5
83	Determine if you unseated and reseated the NTEX22 and NT9X84 EIU cards during this procedure.	
	If you	Do
	unseated and reseated the two EIU cards	step 113
	did not unseat and reseat the two EIU cards	step 97
84	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 114
	failed	step 83
85	Determine if you worked on the other EIU tap.	
	If you	Do
	worked on the other EIU tap before	step 97

PM EIU critical (continued)

	If you	Do
	did not work on the other EIU tap before	step 86
86	Determine the state of the second EIU tap.	
	If the state of the second EIU tap	Do
	is M	step 81
	is S	step 87
87	To force the F-bus tap for the EIU to busy, type >BSY FBUS fbus_no tap_no FORCE and press the Enter key. <i>where</i> fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35) Go to step 81.	
88	Determine if one EIU critical alarm cleared.	
	If the EIU critical alarm	Do
	cleared	step 114
	did not clear, and you are working on an ISTb (NA) EIU	step 93
	did not clear, and you are working on a SysB (NA) EIU	step 89
89	To quit from the F-bus level, type >QUIT and press the Enter key.	
90	To post the system busy not accessible EIU, type >POST EIU eiu_no and press the Enter key. <i>where</i> eiu_no is the number of the EIU that you posted at step 2	

PM EIU critical (continued)

-
- 91** Determine the state of the EIU.
- | If the state of the EIU | Do |
|--------------------------------|---------|
| changed from SysB (NA) to SysB | step 92 |
| did not change | step 95 |
-
- 92** You are working on a system busy EIU. Note this information for future reference.
Go to step 5.
- 93** To quit from the F-bus level, type
>QUIT
and press the Enter key.
- 94** To post the EIU, type
>POST EIU eiu_no
and press the Enter key.
where
 eiu_no
 is the number of the EIU (0 to 215)
- 95** To force the EIU to busy, type
>BSY FORCE
and press the Enter key.
Example of a MAP response:
- Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):
- 96** To confirm the command, type
>YES
and press the Enter key.
- 97** To determine the location of the EIU, type
>QUERYPM
and press the Enter key.
- Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the EIU.

PM EIU critical (continued)

PM type:EIU PM No.:110 Status: ManB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
Msg Channel #0 NA
Msg Channel #1 NA
TAP #0 OOS/NA
TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)

At the LPP

98



DANGER

Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.



WARNING

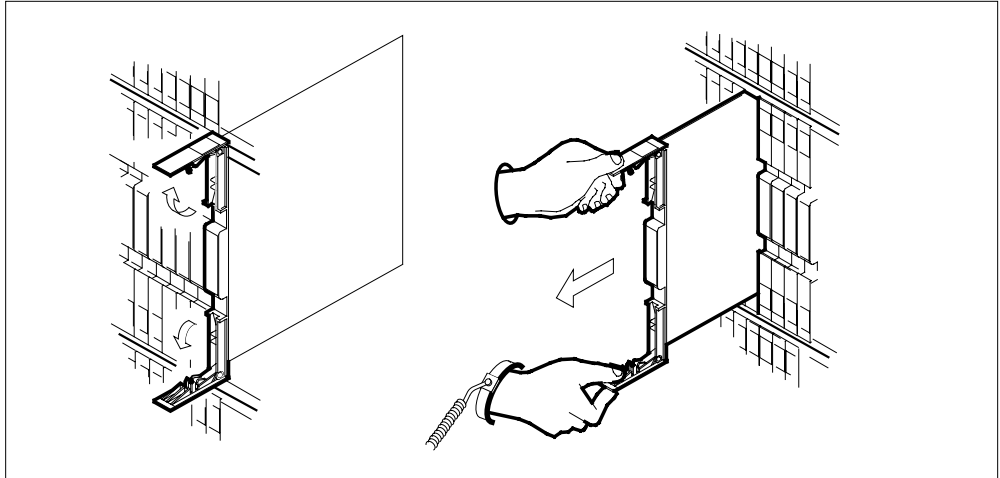
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X84 card associated with the EIU.

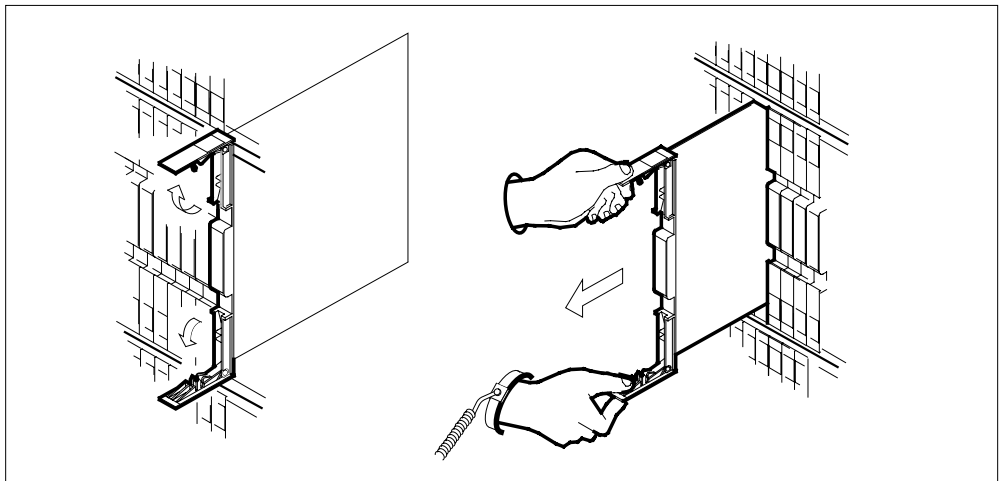
99

Open the locking levers on the card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

PM EIU
critical (continued)



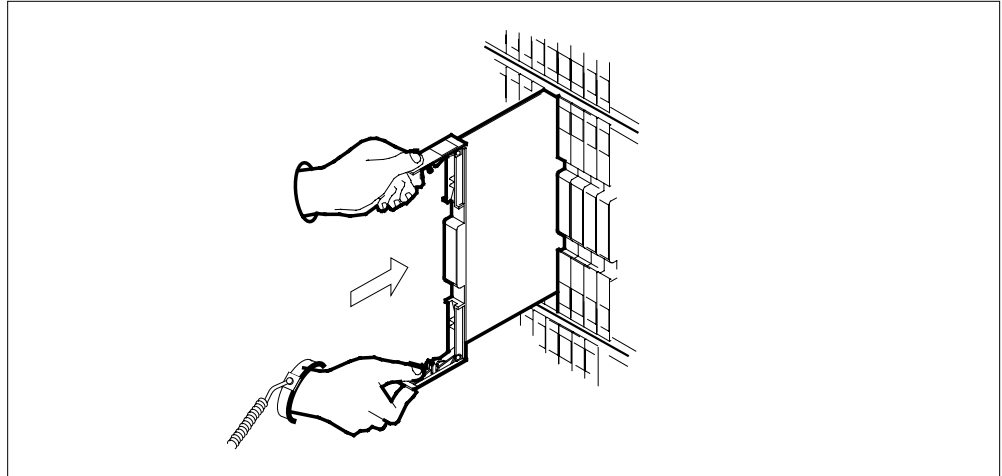
- 100** Leave the NT9X84 card in the slot on the link interface shelf (LIS).
- 101** Locate the NTEX22 card for the EIU.
- 102** Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



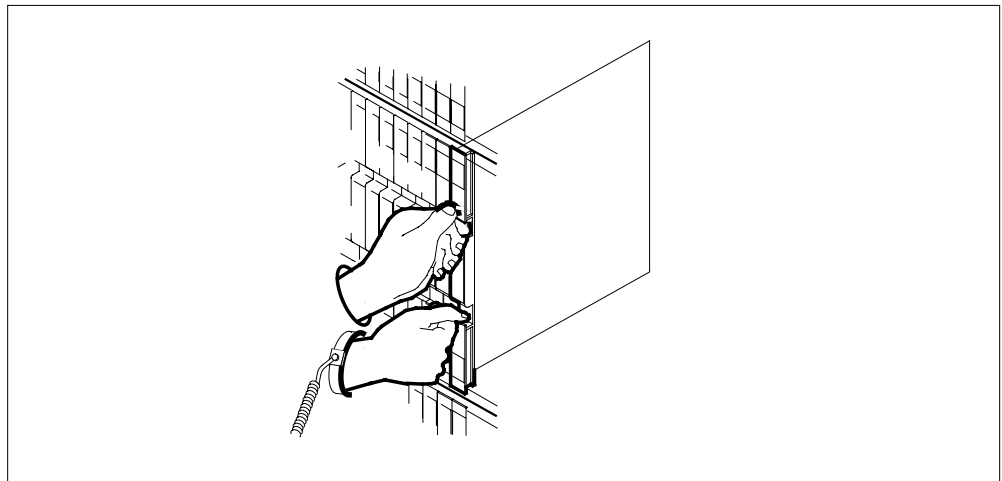
- 103** Carefully slide the NTEX22 card in the LIS.

PM EIU

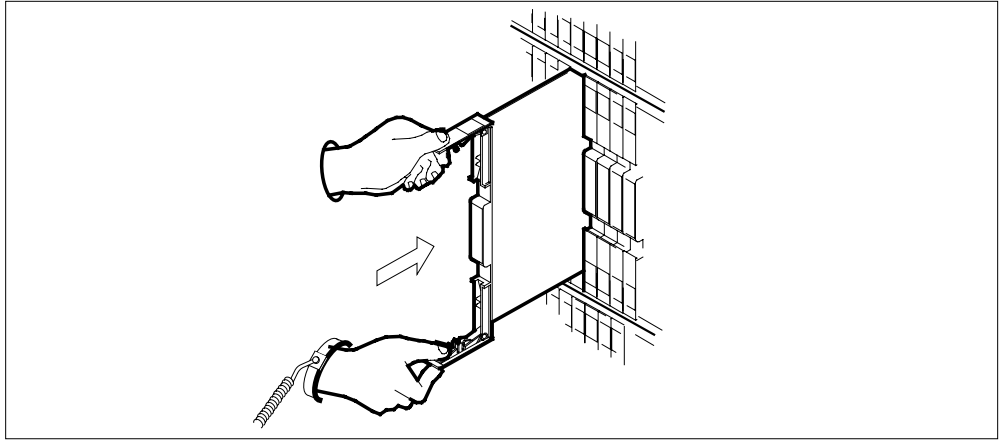
critical (continued)



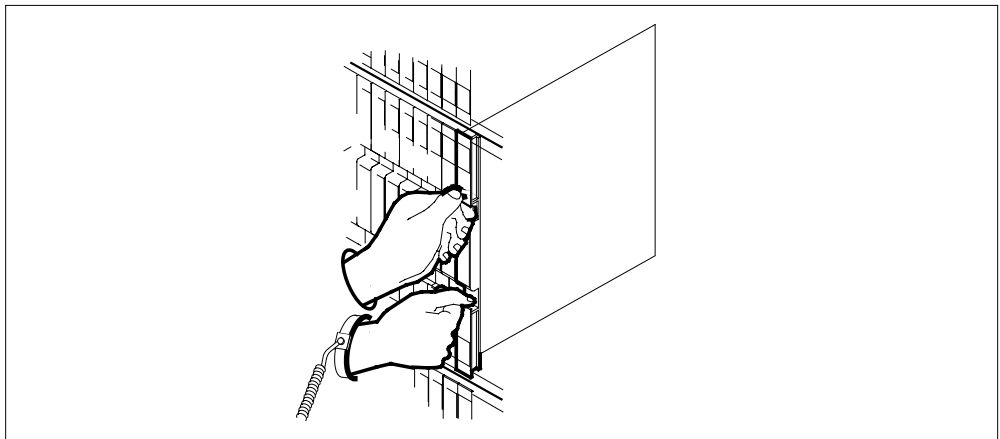
- 104** Seat and lock the NTEX22 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - b** Close the locking levers.



- 105** Carefully slide the NT9X84 card back into the LIS.

PM EIU
critical (continued)

- 106** Seat and lock the NT9X84 card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - Close the locking levers.

***At the MAP display***

- 107** To load the EIU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 108

PM EIU critical (continued)

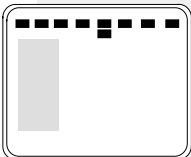
	If the LOADPM command	Do
	failed. A card list is present. You did not replace any cards in the EIU.	step 109
	failed. A card list is present. You replaced cards in the EIU.	step 113
	failed. A card list is not present.	step 113
108	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 114
	failed. A card list is present. You did not replace cards in the EIU.	step 109
	failed. A card list is present. You replaced cards in the EIU.	step 113
	failed. A card list is not present.	step 113
109	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.	
110	To post the LIM for the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM that you recorded in step 30	
111	To access the F-bus level of the MAP display, type >FBUS and press the Enter key.	
112	Determine the state of the F-bus for the EIU.	
	If	Do
	a minimum of one of the EIU taps is in service	step 48

**PM EIU
critical (end)**

	If	Do
	both EIU taps are M	step 56
	both EIU taps are out of service and a minimum of one EIU tap is S	step 72
113	For additional help, contact the next level of support.	
114	The procedure is complete.	

PM EIU
major

Alarm display

	CM	MS	IOD	Net	PM 1EIU M	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

At the MTC level of the MAP display, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a major alarm for the Ethernet interface unit (EIU).

Meaning

A minimum of one EIU is manual busy or manual busy not accessible.

The number under the PM header of the alarm banner indicates the number of affected EIUs.

Result

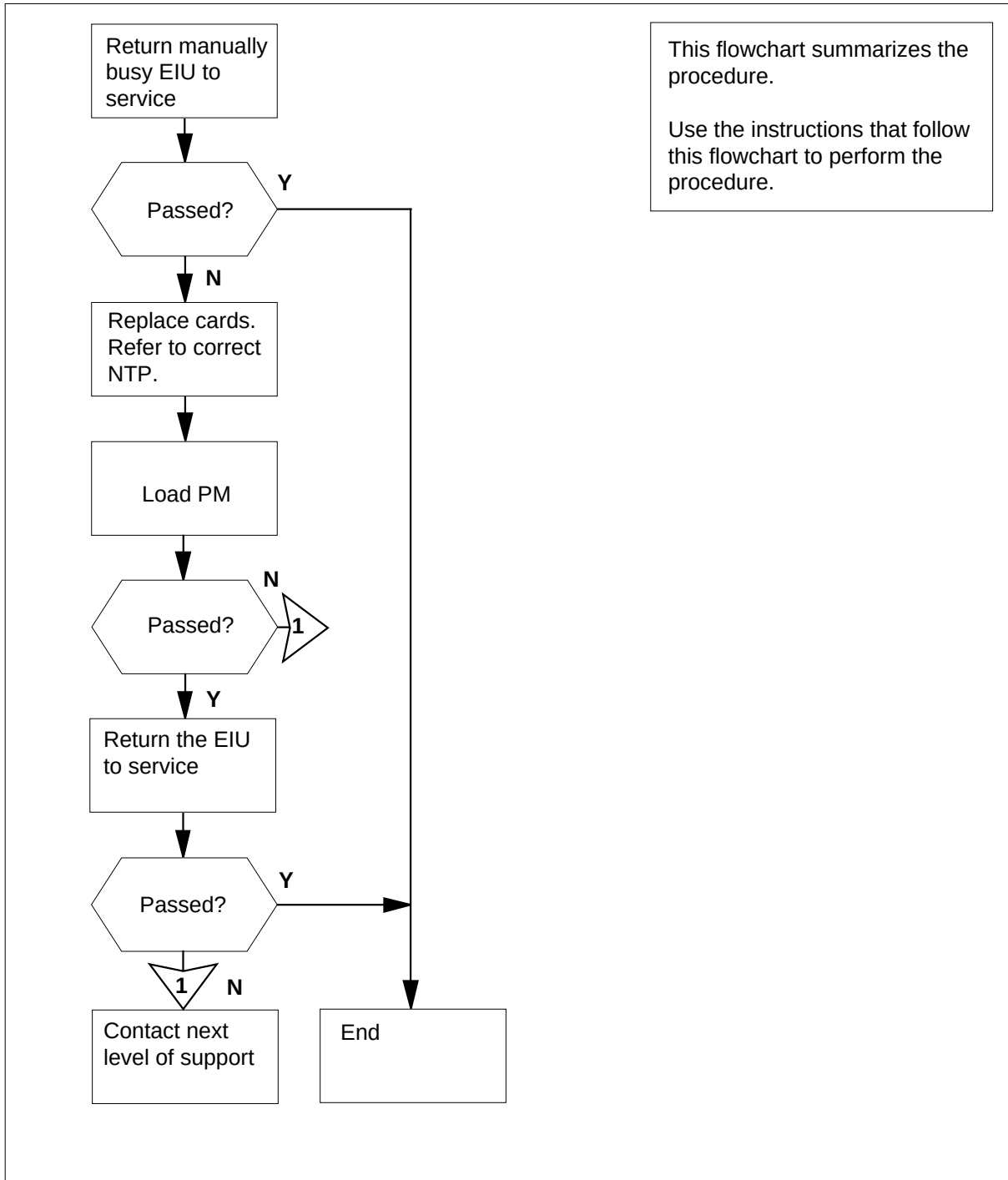
Communication does not occur between the switch and the local area network (LAN) or wide area network (WAN). Communication does not occur if only one EIU is present for each application. The service management system (SMS) is an example of a EIU application. The presence of more than one EIU for each application does not affect service.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM EIU
major (continued)**Summary of clearing a PM EIU major alarm**

PM EIU major (continued)

Clearing a PM EIU alarm

At the MAP terminal

- 1** To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAPdisplay:

PM	SysB	ManB	OffL	CBsy	ISTb	InSv
	0	1	0	0	0	39

- 2** To post the EIUs that are manually busy, type

>POST EIU MANB

and press the Enter key.

Example of a MAP display:

EIU 131 ManB Rsvd

Note: In the example of the EIU MAP display, the EIU state is ManB. The EIU state appears on the right side of the number 131.

- 3** Determine the state of the posted EIU.

If the posted EIU	Do
is ManB (NA)	step 19
is ManB	step 4

- 4** Record the number of the EIU.

Note: In the example in step 2, the EIU number is 131.

- 5** To test the EIU, type

>TST

and press the Enter key.

If the TST command	Do
passed	step 9
failed, and the system generated a card list	step 6

PM EIU major (continued)

	If the TST command	Do
	failed, and the system did not generate a card list	step 16
6	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.	
7	To reset the EIU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 9
	failed, and the system generated a card list	step 8
	failed, and the system did not generate a card list	step 8
8	To load the EIU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 9
	failed, and the system generated a card list	step 10
	failed, and the system did not generate a card list	step 10
9	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 98
	failed, and the system generated a card list	step 10

PM EIU major (continued)

	If the RTS command	Do
	failed, and the system did not generate a card list	step 81
10	Replace the first card in the list that you recorded in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
11	To reset the EIU, type >PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 15
	failed	step 12
12	To load the EIU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 15
	failed, and you did not replace all cards that you recorded on the list	step 13
	failed, and you replaced all cards that you recorded on the list	step 81
13	Replace the first card in the list that you recorded in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
14	Go to step 11.	
15	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 98
	failed	step 81

PM EIU
major (continued)

- 16** To reset the EIU, type

>PMRESET

and press the Enter key.

If the PMRESET command	Do
passed	step 9
failed, and the system generated a card list	step 17
failed, and the system did not generate a card list	step 17

- 17** To load the EIU, type

>LOADPM

and press the Enter key.

If the LOADPM command	Do
passed	step 9
failed, and the system generated a card list	step 18
failed, and the system did not generate a card list	step 81

- 18** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.

Go to step 10.

- 19** To determine the link interface module (LIM) that associates with the in-service trouble EIU, type

>QUERYPM

and press the Enter key.

Note: The QUERYPM command provides the LIM number, shelf number, and slot number for the left card of the EIU.

Example of a MAP response:

PM EIU

major (continued)

```
PM type:EIU PM No.:110  Status:
ManB(NA)
LIM: 1  Shelf:2  Slot: 12  EIU
FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting
conditions:
  Msg Channel #0 NA
  Msg Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States:      InSv      InSv
Auditing :       No        No
Msg Channels:    NA         NA
TAP 2 :          S(NA)     M(NA)
```

- 20** Record the number of the LIM that associates with the EIU.

Note: In the example in step 19, the LIM number is 1. The LIM number appears on the second line of the response. The LIM number appears on the right side of the LIM header.

- 21** To post the LIM that associates with the EIU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP display:

PM EIU major (continued)

```
LIM 1 InSv
                                Links_00S Taps_00S
Unit0: InSv                    .          .
Unit1: InSv                    .          .
```

PM type:EIU PM No.:110 Status:ManB
(NA)

LIM: 1 Shelf:2 Slot: 12 EIU

FTA:4249 1000

Default Load: LCC35BX

Running Load: LCC35BX

Potential service affecting
conditions:

Msg Channel #0 NA

Msg Channel #1 NA

TAP #0 OOS/NA

TAP #1 OOS/NA

LMS States: InSv InSv

Auditing : No No

Msg Channels: NA NA

TAP 2 : S(NA) M(NA)

22 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTb
                                Links_00S Taps_00S
Unit0: ISTb                    .          19
Unit1: InSv                    .          2
Tap: 0  4  8  12  16  20  24  28  32
FBus0: ManB                    BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv                    ...M .I.. .S.. .... ---- ---- ---- ---. ..--
```

Note: In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number indicates that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually busy tap. An I means an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates a tap that is not equipped.

PM EIU major (continued)

- 23** Determine the state of the LIM units and both F-buses (0 and 1).
Note: Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.
-
If the state of both LIM units and- both F-buses	Do
is InSv or ISTb	step 26
is other than listed here	step 24
-
- 24** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.
- 25** Go to step 1.
- 26** To determine the F-bus taps that associate with the EIU, type
>TRNSL fbus_no
 and press the Enter key.
where
fbus_no
 is the number of the F-bus (0 or 1)
Example of a MAP response:
- | | | | |
|-------|------------|---|----------------|
| LIM 1 | FBus 0 Tap | 0 | is on LIU7 101 |
| LIM 1 | FBus 0 Tap | 1 | is unequipped |
| LIM 1 | FBus 0 Tap | 2 | is on EIU 110 |
| LIM 1 | FBus 0 Tap | 3 | is on LIU7 104 |
- 27** Record the EIU tap number that associates with the EIU.
- 28** Determine the state of the F-bus taps that associate with the EIU.
Note: The tap number that you recorded in step 27 applies to both F-bus 0 and F-bus 1.
-
If	Do
both F-bus taps are M	step 34
both F-bus taps are S	step 29
one F-bus tap is M and the other F-bus tap is S	step 33
-
- 29** To quit from the F-bus level, type
>QUIT
 and press the Enter key.

PM EIU major (continued)

- 30** To post the EIU, type
>POST EIU eiu_no
 and press the Enter key.
where
eiu_no
 is the number of the EIU (0 to 215)
- 31** To return the EIU to service, type
>RTS
 and press the Enter key.
- | If the RTS command | Do |
|---|---------|
| passed | step 98 |
| failed, and the system generated a card list | step 32 |
| failed, and the system did not generate a card list | step 75 |
- 32** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.
 Go to step 10.
- 33** Work on the manually busy EIU tap first.
 Go to step 35.
- 34** Choose one of the manual busy taps on F-bus 0 or 1 on which to work.
- 35** Consult office records or operating company personnel. Determine why the tap is manually busy.
- | If you | Do |
|--|---------|
| can return the F-bus tap to service | step 36 |
| cannot return the F-bus tap to service | step 98 |
- 36** To return the first F-bus tap that associates with the EIU to service, type
>RTS FBUS fbus_no tap_no
 and press the Enter key.
where
fbus_no
 is the number of the F-bus (0 or 1)

PM EIU major (continued)

tap_no is the number of the F-bus tap (0 to 35)	
If the RTS command	Do
passed	step 77
failed. The system generated a card list. Both EIU taps are out of service	step 43
failed. The system did not generate a card list	step 77
failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible.	step 77
37 Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.	
If you	Do
removed and replaced the two EIU cards	step 97
did not remove and replace the two EIU cards	step 79
38 Record the location, description, slot number, PEC, and PEC suffix of each card on the list.	
39 To quit from the F-bus level of the MAP display, type >QUIT	
and press the Enter key.	
40 To post the EIU, type >POST EIU eiu_no	
and press the Enter key.	
where	
eiu_no is the number of the EIU (0 to 215)	
41 To reset the EIU, type >PMRESET	
and press the Enter key.	
If the PMRESET command	Do
passed	step 76

PM EIU major (continued)

	If the PMRESET command	Do
	failed	step 42
42	To load the EIU, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 76
	failed	step 63
43	Record the location, description, slot number, PEC, and PEC suffix of each card on the list.	
44	Determine the state of the F-bus taps that associates with the EIU.	
	If	Do
	both EIU taps are M	step 45
	a minimum of one EIU tap is in service (.)	step 61
	a minimum of one EIU tap is S	step 61
45	Replace the first card in the list that you recorded in step 6,18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
46	To post the LIM that associates with the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 16)	
47	To access the F-bus level of the MAP display, type >FBUS and press the Enter key. <i>Example of a MAP display:</i>	

PM EIU major (continued)

```

LIM 1 ISTb
Unit0:  ISTb      .
Unit1:  InSv      .
Tap:    0  4  8  12  16  20  24  28  32
FBus0:  ManB      BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1:  InSv      ...M .I.. .S.. .... ---- ---- ---- ---. ..--

```

Note: In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number indicates that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

- 48 To return the first F-bus tap that associates with the EIU to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 53
failed, and you did not replace all cards that you recorded on the list	step 49
failed, and you replaced all cards that you recorded on the list	step 75

- 49 Replace the first card that you recorded in the list in step 6, 18 or 32. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 50 To post the LIM that associates with the EIU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

- 51 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

PM EIU major (continued)

- 52** Go to step 48.
- 53** To return the second F-bus tap that associates with the EIU to service, type
>RTS FBUS fbus_no tap_no
 and press the Enter key.
where
fbus_no
 is the number of the F-bus (0 or 1)
tap_no
 is the number of the F-bus tap (0 to 35)
- | If the RTS command | Do |
|--------------------|---------|
| passed | step 54 |
| failed | step 54 |
- 54** To quit from the F-bus level, type
>QUIT
 and press the Enter key.
- 55** To post the EIU, type
>POST EIU eiu_no
 and press the Enter key.
where
ei_u_no
 is the number of the EIU (0 to 215)
- 56** To reset the EIU, type
>PMRESET
 and press the Enter key.
- | If the PMRESET command | Do |
|------------------------|---------|
| passed | step 58 |
| failed | step 57 |
- 57** To load the EIU, type
>LOADPM
 and press the Enter key.
- | If the LOADPM command | Do |
|-----------------------|---------|
| passed | step 58 |

PM EIU major (continued)

	If the LOADPM command	Do
	failed, and you did not replace all cards that you recorded on the list	step 59
	failed, and you replaced all cards that you recorded on the list	step 75
58	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 98
	failed, and you did not replace all the cards that you recorded on the list	step 59
	failed, and you replaced all cards that you recorded on the list	step 75
59	Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
60	Go to step 56.	
61	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
62	To post the EIU, type >POST EIU eiu_no and press the Enter key. <i>where</i> eiu_no is the number of the EIU (0 to 215)	
63	Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
64	To reset the EIU, type >PMRESET	

PM EIU major (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 76
failed	step 65

- 65** To load the EIU, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 76
failed, and you did not replace all cards that you recorded on the list	step 66
failed, and you replaced all cards that you recorded on the list	step 75

- 66** Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 67** Go to step 64.

- 68** To return the second F-bus tap that associates with the EIU to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.
where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed. The other tap that associates with the EIU is out of service	step 69
passed. The other tap that associates with the EIU is in service	step 69
failed. The system generated a card list. Both EIU taps are out of service	step 43

PM EIU major (continued)

	If the RTS command	Do
	failed. The system generated a card list. One EIU tap is in service	step 38
	failed. The system did not generate a card list	step 37
	failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible.	step 37
69	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
70	To post the EIU, type >POST EIU eiu_no and press the Enter key. <i>where</i> eiu_no is the number of the EIU (0 to 215)	
71	To return the EIU to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 98
	failed, and the system generated a card list	step 72
	failed, and the system did not generate a card list	step 75
72	Record the location, description, slot number, PEC, and PEC suffix of each card on the list.	
73	To post the LIM that associates with the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 16)	

PM EIU major (continued)

- 74** To access the F-bus level of the MAP display, type
>FBUS
 and press the Enter key.
 Go to step 44.
- 75** Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.
- | If you | Do |
|--|---------|
| removed and replaced the two EIU cards | step 97 |
| did not remove and replace the two EIU cards | step 81 |
- 76** To return the EIU to service, type
>RTS
 and press the Enter key.
- | If the RTS command | Do |
|--------------------|---------|
| passed | step 98 |
| failed | step 75 |
- 77** Determine the state of the second EIU tap.
- | If the state of the second EIU tap | Do |
|------------------------------------|---------|
| is M | step 68 |
| is S | step 78 |
- 78** To force the F-bus tap that associates with the EIU to busy, type
>BSY FBUS fbus_no tap_no FORCE
 and press the Enter key.
where
fbus_no
 is the number of the F-bus (0 or 1)
tap_no
 is the number of the F-bus tap (0 to 35)
 Go to step 68.
- 79** To quit from the F-bus level, type
>QUIT
 and press the Enter key.

PM EIU major (continued)

- 80 To post the EIU, type
>POST EIU eiu_no
and press the Enter key.
where
eiu_no
is the number of the EIU (0 to 215)
- 81 To determine the location of the EIU, type
>QUERYPM
and press the Enter key.

Note: The QUERYPM command provides the LIM number, shelf number, and slot number for the left card of the EIU.

Example of a MAP response:

```
PM type:EIU PM No.:110 Status: ManB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
  Msg Channel #0 NA
  Msg Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
```

At the LPP

82



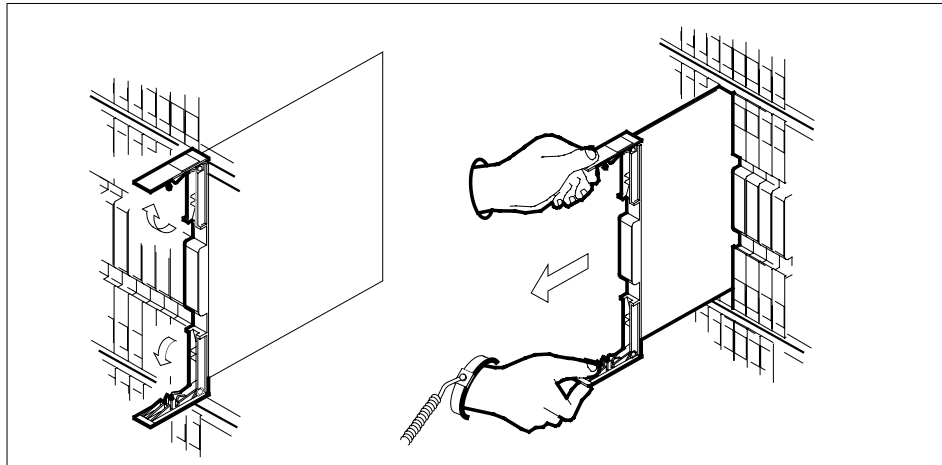
WARNING

Static electricity damage

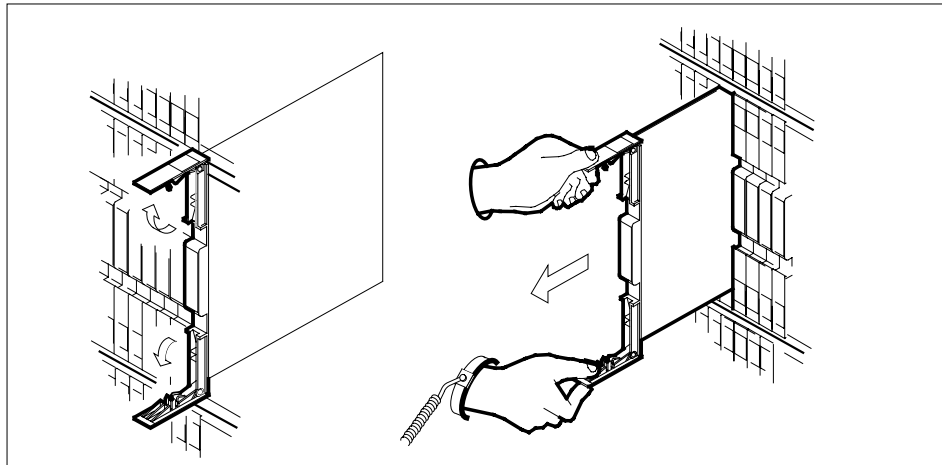
Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

- Locate the NT9X84 card that associates with the EIU.
- 83 Open the locking levers on the NT9X84 card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

PM EIU
major (continued)

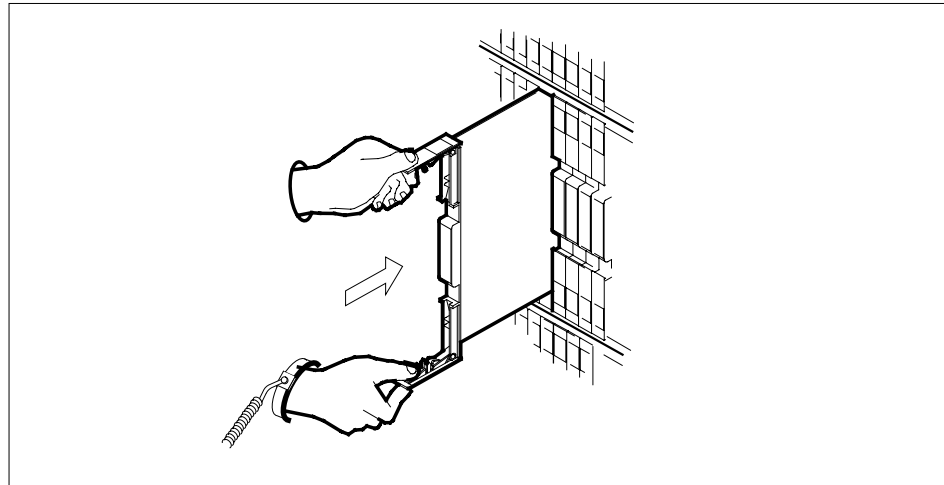


- 84 Leave the NT9X84 card in the slot on the link interface shelf (LIS).
- 85 Locate the NTEX22 card that associates with the EIU.
- 86 Open the locking levers on the NTEX22 card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.

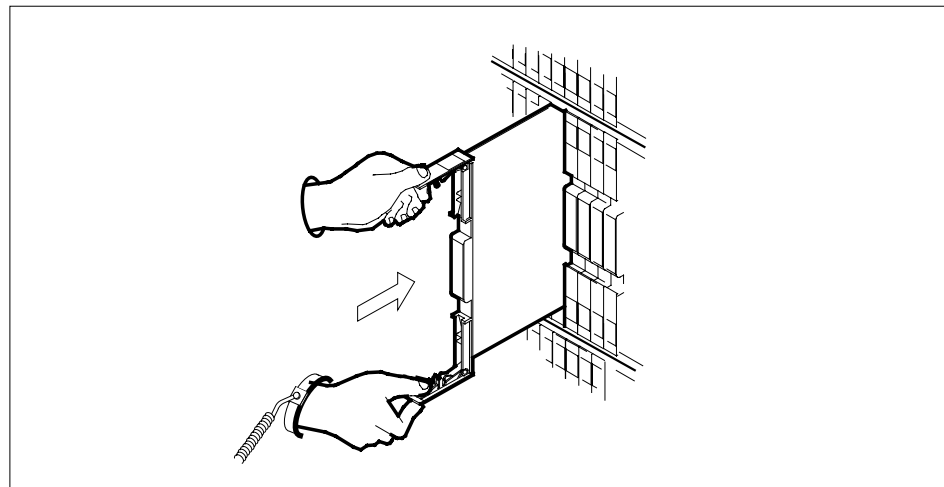


- 87 Carefully slide the NTEX22 card in the LIS.

PM EIU major (continued)

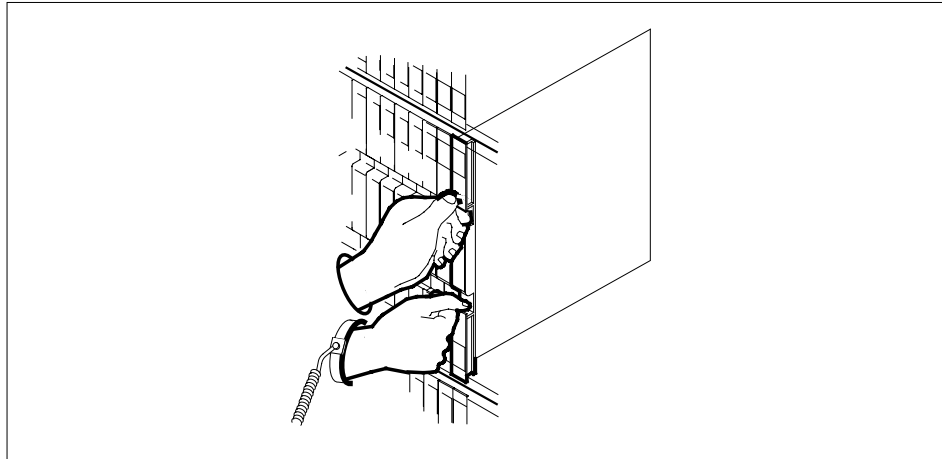


- 88** Seat and lock the NTEX22 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - b** Close the locking levers.
- 89** Carefully slide the NT9X84 card in the LIS.



- 90** Seat and lock the NT9X84 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - b** Close the locking levers.

PM EIU major (continued)



At the MAP terminal

- 91** To load the EIU, type
>LOADPM
 and press the Enter key.

If the LOADPM command	Do
passed	step 92
failed. A card list is present. You did not replace any cards in the EIU	step 93
failed. A card list is present. You replaced cards in the EIU	step 97
failed. A card list is not present	step 97

- 92** To return the EIU to service, type
>RTS
 and press the Enter key.

If the RTS command	Do
passed	step 98
failed. A card list is present. You did not replace cards in the EIU	step 93

PM EIU major (continued)

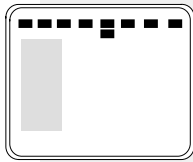
	If the RTS command	Do
	failed. A card list is present. You replaced cards in the EIU	step 97
	failed. A card list is not present	step 97
93	Record the location, description, slot number, PEC, and PEC suffix of each card on the list.	
94	To post the LIM that associates with the EIU, type >POST LIM lim_no and press the Enter key. <i>where</i> lim_no is the number of the LIM (0 to 16)	
95	To access the F-bus level of the MAP display, type >FBUS and press the Enter key. <i>Example of a MAP display:</i> LIM 1 ISTb Links_00S Taps_00S Unit0: ISTb . 19 Unit1: InSv . 2 Tap: 0 4 8 12 16 20 24 28 32 FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB-- FBus1: InSv ..M .I.. .S.. ---- ---- ---- ---. Note: In the example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.	
96	Determine the state of the F-bus taps that associate with the EIU.	
	If	Do
	a minimum of one of the EIU taps is in service	step 39
	both EIU taps are M	step 45
	both EIU taps are out of service. A minimum of one tap is S	step 61

PM EIU
major (end)

- 97 For additional help, contact the next level of support.
- 98 The procedure is complete.

PM EIU minor

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1EIU	.	.	.	.	.

Indication

At the MTC level of the MAPdisplay, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a minor alarm for the Ethernet interface unit (EIU).

Meaning

A minimum of one EIUs is in-service trouble. One of the F-bus taps that associates with the EIU is manually busy or system busy. The EIU can have a loadname mismatch. The local area network (LAN) or wide area network (WAN) can have a defect.

The number under the PM header of the alarm banner indicates the number of affected EIUs.

Result

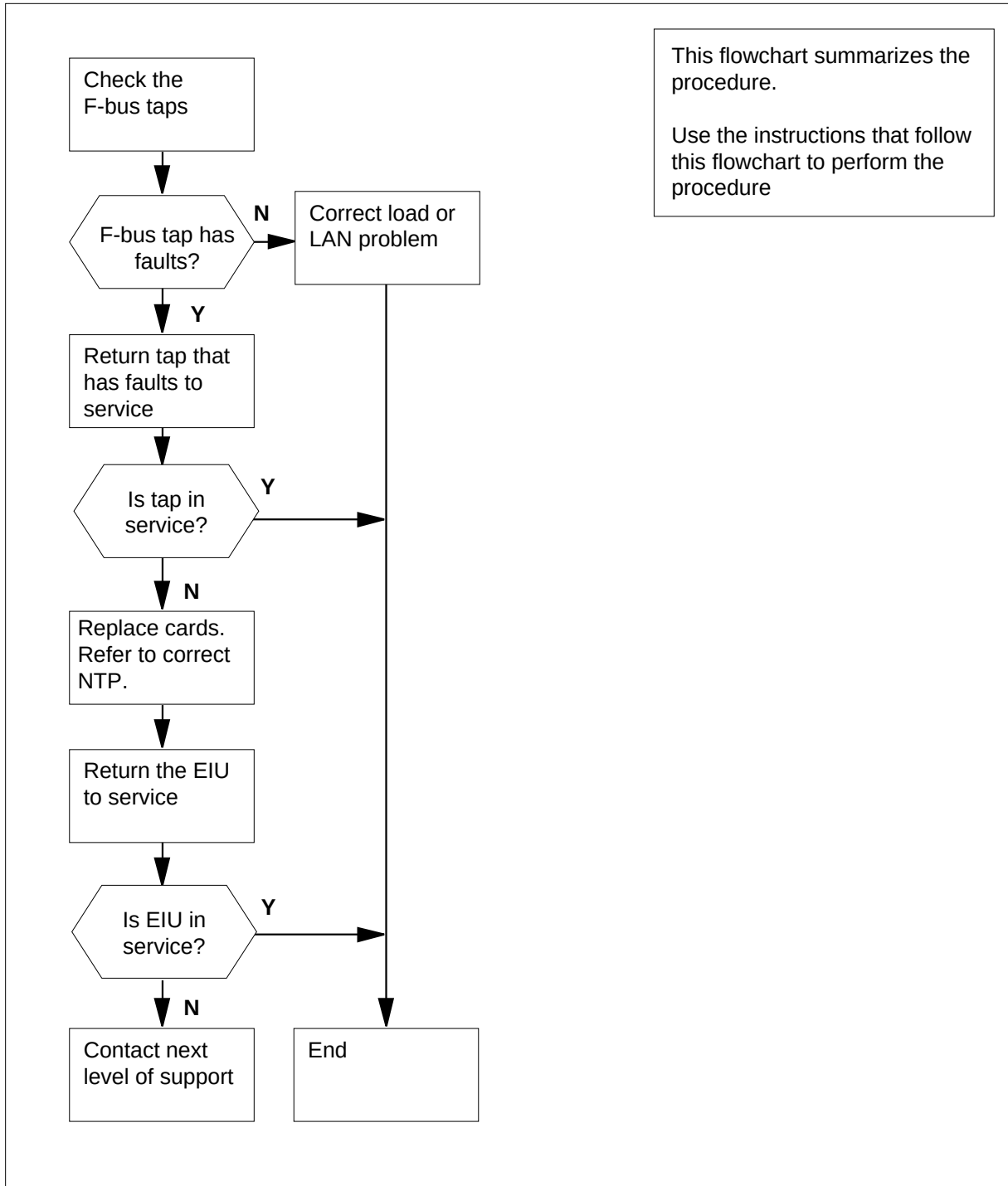
EIUs that are in-service trouble continue to function.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM EIU
minor** (continued)**Summary of clearing a PM EIU minor alarm**

PM EIU minor (continued)

Clearing a PM EIU alarm

At the MAP terminal

1



WARNING

Possible loss of service

Performance of the following procedure can require the removal of an EIU from service. Busy an EIU as instructed. Do not busy the EIU when communication is critical between the switch and the LAN or WAN that connects to the EIU. Communication stops when you busy the EIU.

To access the PM level of the MAPdisplay, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

InSv	PM	SysB	ManB	OffL	CBsy	ISTb
1	39		0	0	0	0

2 To post the EIUs that have in-service trouble, type

>POST EIU ISTB

and press the Enter key.

Example of a MAP response:

EIU 131 ISTb Rsvd

3 Record the EIU number of the posted EIU.

Note: In the example in step 2, the EIU number is 131.

4 To display the faults that cause the in-service trouble condition, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

PM EIU minor (continued)

PM type:EIU PM No.:110 Status: ISTb
 LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249
 1000
 Default Load: LCC35BX
 Running Load: LCC35BX
 ISTB conditions:
 Msg Channel #0 NA
 TAP #0 OOS/NA
 LMS States: InSv InSv
 Auditing : No Yes
 Msg Channels: NA Acc
 TAP 2 : M .

- 5 Determine the faults that cause the in-service trouble condition.

Note: The faults appear under the ISTB conditions header in the MAP response.

If the response indicates	Do
Indicates one of the following faults under the ISTB conditions header:	step 6
rx framing errors	
rx overflow errors	
rx CRC errors	
tx deferred errors	
loss of carrier errors	
late collision errors	
retries exceeded errors	
Indicates F-bus tap is out of service (shown as Tap # n OOS or Tap # n OOS/NA)	step 8
Indicates a loadname mismatch is present	step 65
Indicates other than listed here	step 106

PM EIU minor (continued)

- 6 A problem is present on the LAN. Wait five min for the system to clear the fault.

If the state of the EIU	Do
changes from ISTb to InSv	step 107
does not change	step 7

- 7 The LAN requires a diagnostic test.
Go to step 106.

- 8 Record the number of the F-bus that contains the out-of-service EIU tap.
Note: The F-bus number appears on the right side of TAP # on the response.

- 9 To post the LIM that associates with the EIU, type
>POST LIM lim_no
and press the Enter key.
where
lim_no
is the number of the LIM that appears in step 4

Example of a MAP display:

```
LIM 1 InSv
                                Links_00S Taps_00S
Unit0: InSv                      .           1
Unit1: InSv                      .           .
```

- 10 To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTb
                                Links_00S  Taps_00S
Unit0: ISTb                      .          19
Unit1: InSv                      .           2
Tap:    0   4   8  12  16  20  24  28  32
FBus0: ManB  BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv   ...M .I.. .S.. .... ---- ---- ---- ---. ...
```

Note: In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates a tap that is not equipped.

PM EIU minor (continued)

- 11** Determine the state of the LIM units and both F-buses (0 and 1).
Note: Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.
- | If the state of both LIM units and both F buses | Do |
|---|---------|
| is InSv or ISTb | step 14 |
| is other than listed here | step 12 |
- 12** A LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.
- 13** Determine if one EIU minor alarm cleared.
- | If one EIU minor alarm | Do |
|------------------------|----------|
| cleared | step 105 |
| did not clear | step 1 |
- 14** To determine the F-bus taps that associate with the EIU, type
>TRNSL n
 and press the Enter key.
where
n
 is the number of the F-bus that you recorded in step 8.
Example of a MAP response:
- ```
LIM 1 FBus 0 Tap 0 is on LIU7 101
LIM 1 FBus 0 Tap 1 is unequipped
LIM 1 FBus 0 Tap 2 is on EIU 110
LIM 1 FBus 0 Tap 3 is on LIU7 104
```
- 15** Read through the response until you see the number of the EIU that you posted in step 2. Record the number of the tap that associates with the EIU.
- 16** Determine the state of the F-bus tap that associates with the EIU.  
**Note:** The tap number applies to both F-buses. The tap state appears under the tap number.
- | If the state of the damaged F-bus tap | Do      |
|---------------------------------------|---------|
| is M                                  | step 17 |
| is S                                  | step 18 |

**PM EIU**  
**minor** (continued)

---

- 17** Determine from office records or from operating company personnel why the F-bus tap is manually busy.

---

| <b>If you</b>                          | <b>Do</b> |
|----------------------------------------|-----------|
| can return the F-bus tap to service    | step 19   |
| cannot return the F-bus tap to service | step 107  |

---

- 18** To force the F-bus tap that associates with the EIU to busy, type  
**>BSY FBUS fbus\_no tap\_no FORCE**  
and press the Enter key.

*where*

**fbus\_no**  
is the number of the F-bus (0 or 1)

**tap\_no**  
is the number of the F-bus tap (0 to 35)

*Example of a MAP response:*

LIM 1 FBUS 0 Tap 0 Busy initiated.  
LIM 1 FBUS 0 Tap 0 Busy passed.

- 19** Test the F-bus tap that associates with the EIU in use, type  
**>TST FBUS fbus\_no tap\_no**  
and press the Enter key.

*where*

**fbus\_no**  
is the number of the F-bus (0 or 1)

**tap\_no**  
is the number of the F-bus tap (0 to 35)

---

| <b>If the TST command</b>                                 | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| passed                                                    | step 46   |
| failed, and the system generated a card list              | step 47   |
| failed, and the system did not generate a card list       | step 82   |
| failed with the response local maintenance not accessible | step 20   |

---

## PM EIU minor (continued)

- 20 To perform an in-service test on the LIM unit that associates with the EIU, type  
**>TST UNIT unit\_no**  
 and press the Enter key.

where

**unit\_no**

is the number of the LIM unit that you recorded in step 4

**Note:** In step 8, you recorded the number of the F-bus that contains the out-of service EIU tap. The LIM unit 0 associates with F-bus 0. The LIM unit 1 associates with F-bus 1.

| If the TST command                                  | Do       |
|-----------------------------------------------------|----------|
| passed                                              | step 46  |
| failed, and the system generated a card list        | step 21  |
| failed, and the system did not generate a card list | step 106 |

- 21 Record the location, description, slot number, and product engineering code (PEC), and PEC suffix of each card on the list.

22



### WARNING

#### Possible loss of service

Make sure that the mate LIM unit is in service before you manually busy the LIM unit. The LIM unit contains the card to replace. Failure to make sure that the unit is in service can result in isolation of nodes on link interface shelves (LIS) 1, 2, and 3.

Check the MAP display to determine the state of the mate LIM unit.

**Note:** If the out-of-service EIU tap is on F-bus 0, the LIM unit 1 is the mate. If the out-of-service EIU tap is on F-bus 1, LIM unit 0 is the mate.

| If the state of the mate LIM unit | Do      |
|-----------------------------------|---------|
| is InSv or ISTb                   | step 25 |
| is other than listed here         | step 23 |

- 23 Perform the correct alarm clearing procedure in this document to return the LIM unit to service. Complete the procedure and return to this point.

- 24 Go to step 13.

## PM EIU minor (continued)

- 25 To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.

*Example of a MAP display:*

|             |      |      |      |      |      |      |      |      |      |      |
|-------------|------|------|------|------|------|------|------|------|------|------|
|             | Tap: | 0    | 4    | 8    | 12   | 16   | 20   | 24   | 28   | 32   |
| FBus0: ManB |      | BBBB | BBBB | BBBB | BBBB | ---- | ---- | ---- | ---B | BB-- |
| FBus1: InSv |      | ...M | .I.. | .S.. | .... | ---- | ---- | ---- | ---  | ..-- |

**Note:** In the previous example, B under a tap number means that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

26



### WARNING

#### Possible loss of service

Make sure that the mate F-bus and taps for equipped and online nodes are in service. The F-bus and taps must be in service before you manually busy the LIM unit that contains the card to replace. Failure to make sure that the F-bus and taps are in service can result in isolation of nodes on LIS 1, 2, and 3.

Determine the state of the mate F-bus.

**Note:** If the out-of-service EIU tap is on F-bus 0, F-bus 1 is the mate. If the out-of-service EIU tap is on F-bus 1, F-bus 0 is the mate. The state of the F-bus appears on the right side of the words FBus0 or FBus1. The state of the F-bus appears in the example in step 25.

| If the state of the mate F-bus | Do      |
|--------------------------------|---------|
| is InSv or ISTb                | step 29 |
| is other than listed here      | step 27 |

- 27 Perform the correct alarm clearing procedure in this document to return the mate F-bus to service. Complete the procedure and return to this point.
- 28 Go to step 13.
- 29 Determine the state of the taps on the mate F-bus.

**Note:** The tap states appear in the two rows of characters under the numbers 0 to 35 (or 0 to 23). The tap states appear in the example in step



## PM EIU minor (continued)

10. If the out-of-service EIU tap is on F-bus 0, check the taps on F-bus 1.  
If the out-of-service EIU tap is on F-bus 1, check the taps on F-bus 0.

|    | If the taps on the mate F-bus                                                                                                                 | Do      |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | are in service (.) or<br>in-service trouble (I)                                                                                               | step 32 |
|    | are manual busy (M) or<br>system busy (S)                                                                                                     | step 30 |
| 30 | Perform the correct alarm clearing procedure in this document to return the taps to service. Complete the procedure and return to this point. |         |
| 31 | Go to step 13.                                                                                                                                |         |
| 32 |                                                                                                                                               |         |



### WARNING

#### Loss of service

Make sure that you manually busy the F-bus that associates with the LIM unit. The LIM unit contains the card to replace. Failure to manually busy the F-bus results in loss of CCS7 messaging. Loss of messaging occurs for all LIU7s in the LPP that currently carry traffic.

Manually busy the F-bus that associates with the LIM unit. The LIM unit contains the card to replace. To manually busy the F-bus, type

**>BSY FBUS fbus\_no**

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

**Note:** F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

| If the response                                              | Do      |
|--------------------------------------------------------------|---------|
| is LIM x FBus y Busy initiated.<br>LIM x FBus y Busy passed. | step 34 |

## PM EIU

### minor (continued)

|    | If the response                                                                                                                                                                                                                                   | Do      |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | is LIM x FBus y Busy requires confirmation because the following NIUs may be active on this bus:<br>NIU xx unit 0<br>NIU xx unit 1<br>Please confirm ("YES", "Y", "NO", or "N"):                                                                  | step 33 |
| 33 | To confirm the command, type<br><b>&gt;YES</b><br>and press the Enter key.<br><i>Example of a MAP display:</i>                                                                                                                                    |         |
|    | <pre>           Tap:   0   4   8  12  16  20  24  28  32 FBus0: ManB      BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB-- FBus1: InSv      .... .... .... .... ---- ---- ---- ---. ...- LIM 1 FBus 0 Busy initiated. LIM 1 FBus 0 Busy passed.</pre> |         |
|    | <b>Note:</b> In the example, you manually busied F-bus 0.                                                                                                                                                                                         |         |
| 34 | To manually busy the LIM unit that contains the card that has faults, type<br><b>&gt;BSY UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                 |         |
|    | If the response is                                                                                                                                                                                                                                | Do      |
|    | Imaging is currently in progress on LIM x UNIT y. Busy Action aborted. Use the force option if you wish to override the imaging of this unit.                                                                                                     | step 35 |
|    | Imaging is currently in progress on LIM x UNIT y and UNIT z. Busy Action aborted. Use the force option if you wish to override the imaging of this unit.                                                                                          | step 36 |

## PM EIU minor (continued)

|    | If the response is                                                                                                                                                                  | Do       |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|    | anything else                                                                                                                                                                       | step 37  |
| 35 | Imaging is being performed on the LIM unit you are working on. Contact the next level of support to determine if it is safe to proceed. Continue as directed.                       |          |
| 36 | Imaging is being performed on the LIM unit you are working on and the mate LIM unit. Contact the next level of support to determine if it is safe to proceed. Continue as directed. |          |
| 37 | To reset the LIM unit, type<br><b>&gt;PMRESET UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)              |          |
|    | If the PMRESET command                                                                                                                                                              | Do       |
|    | passed                                                                                                                                                                              | step 43  |
|    | failed                                                                                                                                                                              | step 38  |
| 38 | To load the LIM unit, type<br><b>&gt;LOADPM UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                |          |
|    | If the LOADPM command                                                                                                                                                               | Do       |
|    | passed                                                                                                                                                                              | step 43  |
|    | failed, and the system generated a card list                                                                                                                                        | step 39  |
|    | failed, and the system did not generate a card list                                                                                                                                 | step 106 |
| 39 | Replace the first card on the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.         |          |
| 40 | To load the LIM unit, type<br><b>&gt;LOADPM UNIT unit_no</b><br>and press the Enter key.                                                                                            |          |

## PM EIU minor (continued)

where

**unit\_no**  
is the number of the LIM unit (0 or 1)

| If the LOADPM command                                                           | Do       |
|---------------------------------------------------------------------------------|----------|
| passed                                                                          | step 43  |
| failed. You did not replace all cards on the list that you recorded in step 39. | step 41  |
| failed. You replaced all cards on the list that you recorded in step 39.        | step 106 |

**41** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**42** Go to step 40.

**43** To return the LIM unit that associates with the EIU to service, type  
**>RTS UNIT unit\_no**  
and press the Enter key.

where

**unit\_no**  
is the number of the LIM unit (0 or 1)

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 44  |
| failed             | step 106 |

**44** To access the F-bus level of the MAP display, type  
**>FBUS**  
and press the Enter key.

**45** To return the F-bus to service, type  
**>RTS FBUS fbus\_no**  
and press the Enter key.

where

**fbus\_no**  
is the number of the F-bus (0 or 1)

## PM EIU minor (continued)

**Note:** F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

|           | If the RTS command                                                                                                                                                                                                                                                            | Do       |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|           | passed                                                                                                                                                                                                                                                                        | step 46  |
|           | failed                                                                                                                                                                                                                                                                        | step 106 |
| <b>46</b> | To return the F-bus tap that associates with the EIU to service, type<br><b>&gt;RTS FBUS fbus_no tap_no</b><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |          |
|           | If the RTS command                                                                                                                                                                                                                                                            | Do       |
|           | passed                                                                                                                                                                                                                                                                        | step 105 |
|           | failed, and the system generated a card list                                                                                                                                                                                                                                  | step 47  |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                           | step 82  |
| <b>47</b> | Record the location, description, slot number, PEC, and PEC suffix of each card on the list.                                                                                                                                                                                  |          |
| <b>48</b> | To quit from the F-bus level, type<br><b>&gt;QUIT</b><br>and press the Enter key.                                                                                                                                                                                             |          |
| <b>49</b> | To post the EIU that you posted in step 2, type<br><b>&gt;POST EIU eiu_no</b><br>and press the Enter key.<br><i>where</i><br><b>eiu_no</b><br>is the number of the EIU that you posted in step 2                                                                              |          |
| <b>50</b> | To manually busy the EIU, type<br><b>&gt;BSY</b><br>and press the Enter key.<br><i>MAP response:</i>                                                                                                                                                                          |          |

**PM EIU**  
**minor** (continued)

---

Bsy EIU eiu\_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN.  
Please confirm ("YES", "Y", "NO", or "N"):

- 51** To confirm the command, type  
**>YES**  
and press the Enter key.
- 52** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 53** To reset the EIU, type  
**>PMRESET**  
and press the Enter key.

---

| If the <b>PMRESET</b> command | Do      |
|-------------------------------|---------|
| passed                        | step 55 |
| failed                        | step 54 |

---

- 54** To load the EIU, type  
**>LOADPM**  
and press the Enter key.
- 
- | If the <b>LOADPM</b> command                                        | Do      |
|---------------------------------------------------------------------|---------|
| passed                                                              | step 55 |
| failed. You did not replace all cards that you recorded on the list | step 60 |
| failed. You replaced all cards that you recorded on the list        | step 87 |
- 

- 55** To post the LIM that associates with the EIU, type  
**>POST LIM lim\_no**  
and press the Enter key.  
where  
    **lim\_no**  
        is the number of the LIM (0 to 16)
- 56** To access the F-bus level of the MAP display, type  
**>FBUS**  
and press the Enter key.

## PM EIU minor (continued)

- 57 To return the F-bus tap that associates with the EIU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.  
*where*  
**fbus\_no**  
 is the number of the F-bus (0 or 1)  
**tap\_no**  
 is the number of the F-bus tap (0 to 35)
- 58 To quit from the F-bus level of the MAP display, type  
**>QUIT**  
 and press the Enter key.
- 59 To post the EIU, type  
**>POST EIU eiu\_no**  
 and press the Enter key.  
*where*  
**eiu\_no**  
 is the number of the EIU (0 to 215)
- 60 Replace the first card on the list. Perform the correct card replacement procedure in the *Card Replacement Procedures*. Complete the procedure and return to this point.
- 61 Go to step 53.
- 62 To quit the F-bus level of the MAP display, type  
**>QUIT**  
 and press the Enter key.
- 63 To post the EIU for the F-bus tap, type  
**>POST EIU eiu\_no**  
 and press the Enter key.  
*where*  
**eiu\_no**  
 is the number of the EIU (0 to 215)
- 64 To return the EIU to service, type  
**>RTS**  
 and press the Enter key.

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 107 |
| failed             | step 87  |

## PM EIU minor (continued)

- 65 Record the names of the default load and the running load.  
**Note:** In the example, the default load is LCC35BX and the running load is LCC35BX.

*Example of a MAP response:*

```
PM type:EIU PM No.:110 Status: ISTb
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
ISTB conditions:
 Msg Channel #0 NA
 TAP #0 OOS/NA
LMS States: InSv InSv
Auditing : No Yes
Msg Channels: NA Acc
TAP 2 : M .
```

66



### WARNING

#### Possible loss of service

Before you continue, contact the next level of support. Make sure that you can change the default load or the running load.

The default load and the running load do not match. To correct this defect, change the default load or the running load.

| If you                       | Do       |
|------------------------------|----------|
| must change the default load | step 67  |
| must change the running load | step 73  |
| must not take any action     | step 107 |

- 67 To access table LIUINV, type  
**>TABLE LIUINV**  
 and press the Enter key.  
*Example of a MAP response:*  
 TABLE:LIUINV
- 68 To position on the key value of the tuple that you must change, type  
**>POSITION EIU eiu\_no**  
 and press the Enter key.



## PM EIU minor (continued)

*where*

**ei\_u\_no**

is the number of the EIU that you recorded in step 3

**69** To indicate the field in the tuple that you must change, type

**>CHANGE LOAD**

and press the Enter key.

**70** To enter the new value of the field that you must change, type

**>new\_load\_name**

and press the Enter key.

*where*

**new\_load\_name**

is the name of the running load that you recorded in step 65

**71** Make sure that the indicated changes are correct. To confirm the new value of the changed field, type

**>Y**

and press the Enter key.

*MAP response:*

TUPLE CHANGED

**72** To quit from the table, type

**>QUIT**

and press the Enter key.

Go to step 105.

**73** To manually busy the EIU, type

**>BSY**

and press the Enter key.

*MAP response:*

Bsy EIU ei\_u\_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN.

Please confirm ("YES", "Y", "NO", or "N"):

**74** To confirm the command, type

**>YES**

and press the Enter key.

**75** To load the EIU, type

**>LOADPM**

## PM EIU minor (continued)

and press the Enter key.

| If the LOADPM command                               | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 81 |
| failed, and the system generated a card list        | step 76 |
| failed, and the system did not generate a card list | step 87 |

- 76** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.
- 77** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 78** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.

| If the LOADPM command                                                           | Do      |
|---------------------------------------------------------------------------------|---------|
| passed                                                                          | step 81 |
| failed. You did not replace all cards on the list that you recorded in step 39. | step 79 |
| failed. You replaced all cards on the list that you recorded in step 39         | step 87 |

- 79** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 80** Go to step 78.
- 81** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 105 |
| failed             | step 88  |

## PM EIU minor (continued)

- 82** To quit from the F-bus level, type  
**>QUIT**  
and press the Enter key.
- 83** To post the EIU, type  
**>POST EIU eiu\_no**  
and press the Enter key.  
*where*  
**eiu\_no**  
is the number of the EIU (0 to 215)
- 84** Determine the state of the EIU.
- | If the state of the EIU | Do      |
|-------------------------|---------|
| is ManB                 | step 87 |
| is not ManB             | step 85 |
- 85** To manually busy the EIU, type  
**>BSY**  
and press the Enter key.  
*MAP response:*
- Bsy EIU eiu\_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN.  
Please confirm ("YES", "Y", "NO", or "N"):
- 86** To confirm the command, type  
**>YES**  
and press the Enter key.
- 87** Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.
- | If you                                       | Do       |
|----------------------------------------------|----------|
| removed and replaced the two EIU cards       | step 106 |
| did not remove and replace the two EIU cards | step 88  |
- 88** To determine the location of the EIU, type  
**>QUERYPM**

## PM EIU minor (continued)

and press the Enter key.

**Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the front left card of the EIU.

*Example of a MAP response:*

```
PM type:EIU PM No.:110 Status: MANb
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Msg Channel #0 NA
TAP #0 00S/NA
LMS States: InSv InSv
Auditing : No Yes
Msg Channels: NA Acc
TAP 2 : M .
```

**At the MAP terminal**

89



### CAUTION

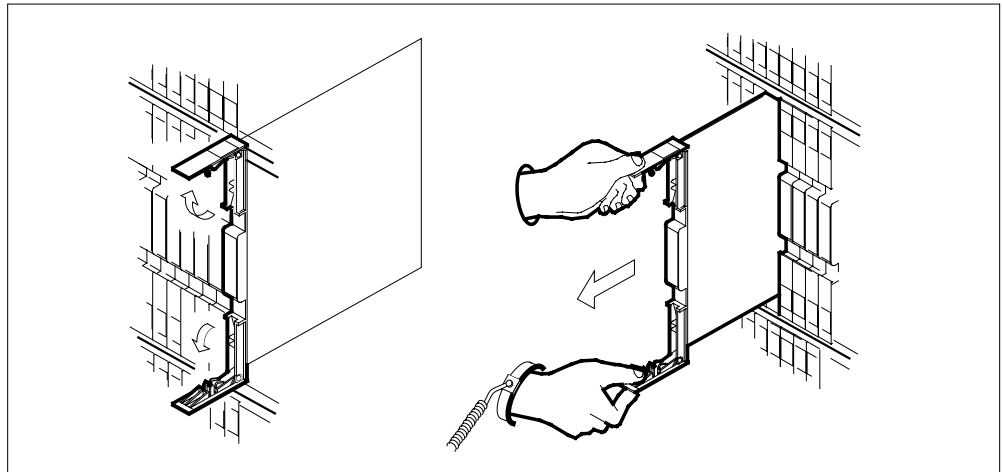
#### Static electricity damage

Wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X84 card that associates with the EIU in use.

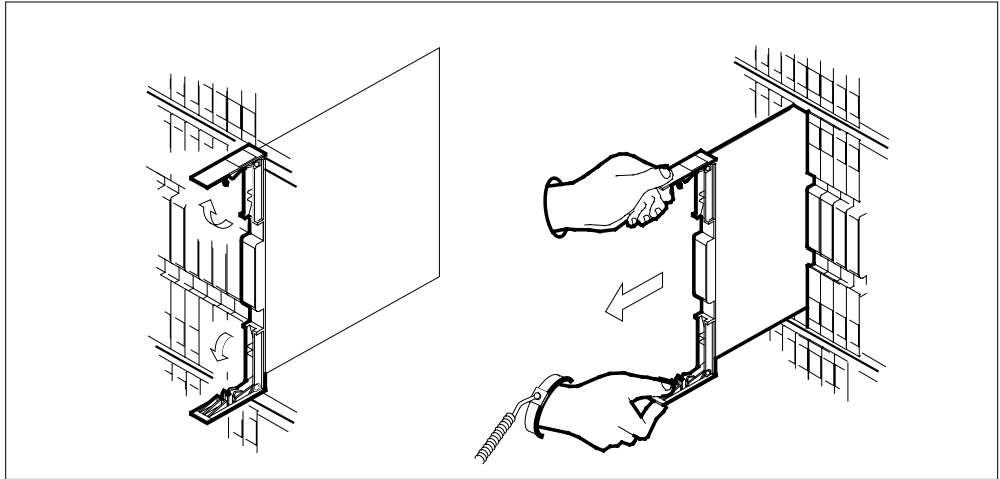
90

Open the locking levers on the NT9X84 card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

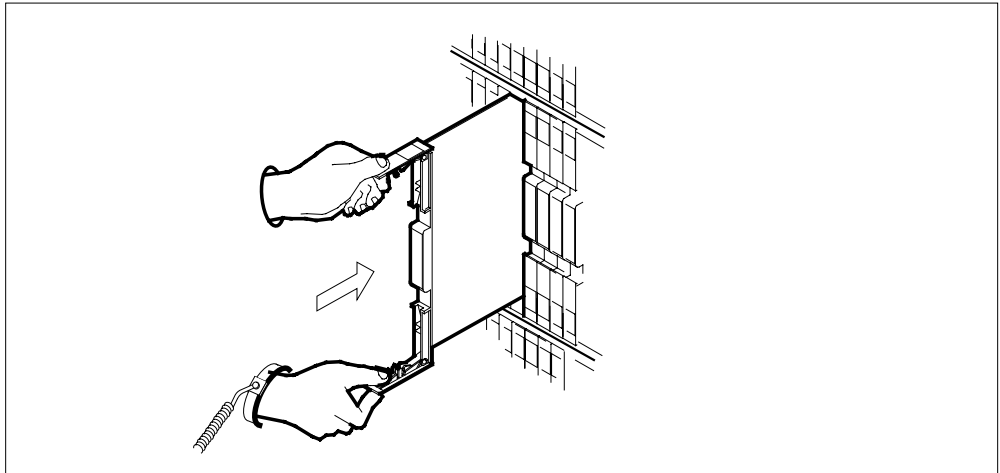


**PM EIU**  
**minor** (continued)

- 91 Leave the NT9X84 card that sits in its slot on the LIS.
- 92 Locate the NTEX22 card that associates with the EIU.
- 93 Open the locking levers on the NTEX22 card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



- 94 Carefully slide the NTEX22 card in the LIS.

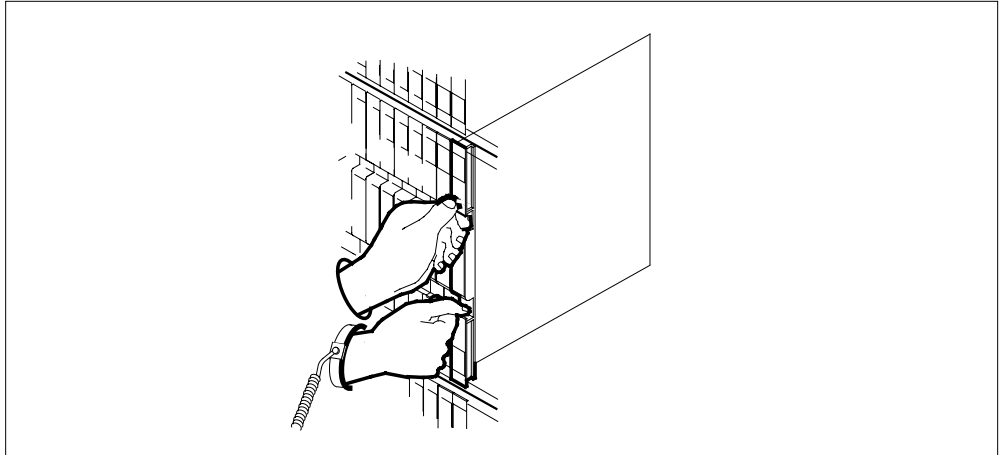


- 95 Seat and lock the NTEX22 card, as follows:
  - a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b Close the locking levers.

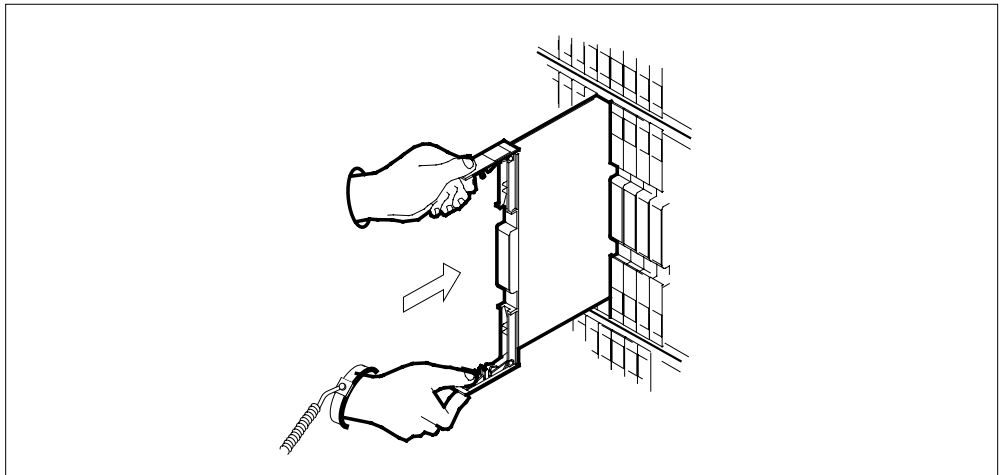
## PM EIU

### minor (continued)

---

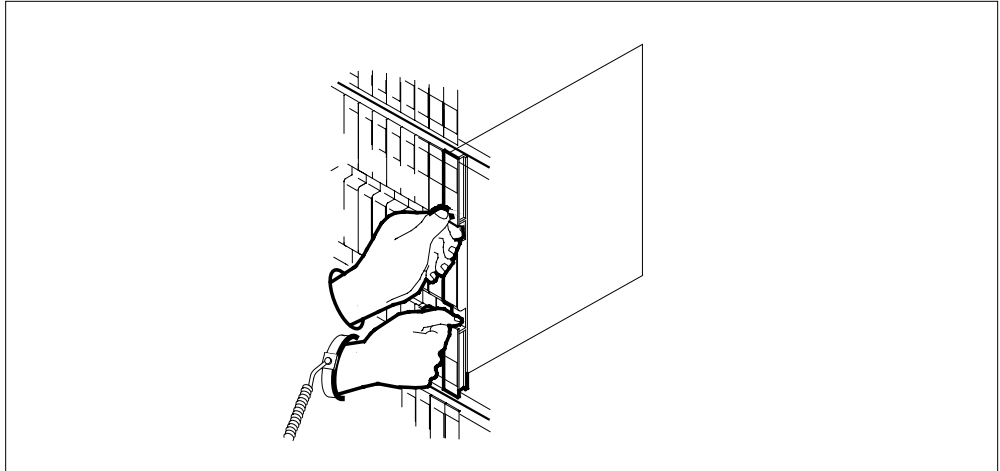


- 96** Carefully slide the NT9X84 card in the LIS.



- 97** Seat and lock the NT9X84 card, as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b** Close the locking levers.

## PM EIU minor (continued)



- 98** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.

| If the <b>LOADPM</b> command                                                            | Do       |
|-----------------------------------------------------------------------------------------|----------|
| passed                                                                                  | step 100 |
| failed. The system generated a card list, and you did not replace any cards in the EIU. | step 99  |
| failed. The system generated a card list, and you replaced cards in the EIU.            | step 106 |
| failed. The system did not generate a card list.                                        | step 106 |

- 99** Record the location, description, slot number, PEC, and PEC suffix, of each card on the list.  
 Go to step 52.

- 100** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.

| If the <b>RTS</b> command | Do       |
|---------------------------|----------|
| passed                    | step 101 |

## PM EIU

### minor (continued)

|            | If the RTS command                                                                                                                                                                                                                                                      | Do       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|            | failed. The system generated a card list, and you did not replace any cards in the EIU.                                                                                                                                                                                 | step 99  |
|            | failed. The system generated a card list, and you replaced cards in the EIU.                                                                                                                                                                                            | step 106 |
|            | failed. The system did not generate a card list.                                                                                                                                                                                                                        | step 106 |
| <b>101</b> | To post the LIM that associates with the EIU, type<br><b>&gt;POST LIM lim_no</b><br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM in use                                                                                        |          |
| <b>102</b> | To access the F-bus level of the MAP display, type<br><b>&gt;FBUS</b><br>and press the Enter key.                                                                                                                                                                       |          |
| <b>103</b> | To determine if one of the EIU taps is manually busy.                                                                                                                                                                                                                   |          |
|            | If an EIU tap                                                                                                                                                                                                                                                           | Do       |
|            | is manually busy                                                                                                                                                                                                                                                        | step 104 |
|            | is not manually busy                                                                                                                                                                                                                                                    | step 105 |
| <b>104</b> | To return the tap that associates with the EIU to service, type<br><b>&gt;RTS FBUS fbus_no tap_no</b><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |          |
|            | If the RTS command                                                                                                                                                                                                                                                      | Do       |
|            | passed                                                                                                                                                                                                                                                                  | step 105 |
|            | failed                                                                                                                                                                                                                                                                  | step 106 |



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**PM EIU  
minor (end)**

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**105** Determine if one EIU minor alarm cleared.

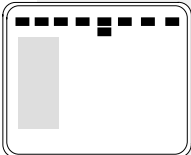
| <b>If one EIU minor alarm</b> | <b>Do</b> |
|-------------------------------|-----------|
| cleared                       | step 107  |
| did not clear                 | step 106  |

**106** For additional help, contact the next level of support.

**107** The procedure is complete.

**PM EXND**  
**minor**

**Alarm display**

|                                                                                   |    |    |     |     |              |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>    | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1EXND</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, EXND preceded by a number appears under the PM header of the alarm banner. The EXND indicates an external node (EXND) minor alarm.

**Meaning**

A minimum of one EXND on an Ethernet LAN failed to respond to a maintenance audit. Failure to respond resulted in a system busy. A problem is present on the external node. A problem can be present on an intermediate node between the external node and the DMS core. Intermediate nodes are Ethernet interface units (EIU) and link interface units (LIU).

The number under the PM header of the alarm banner indicates the number of affected EXNDs.

**Result**

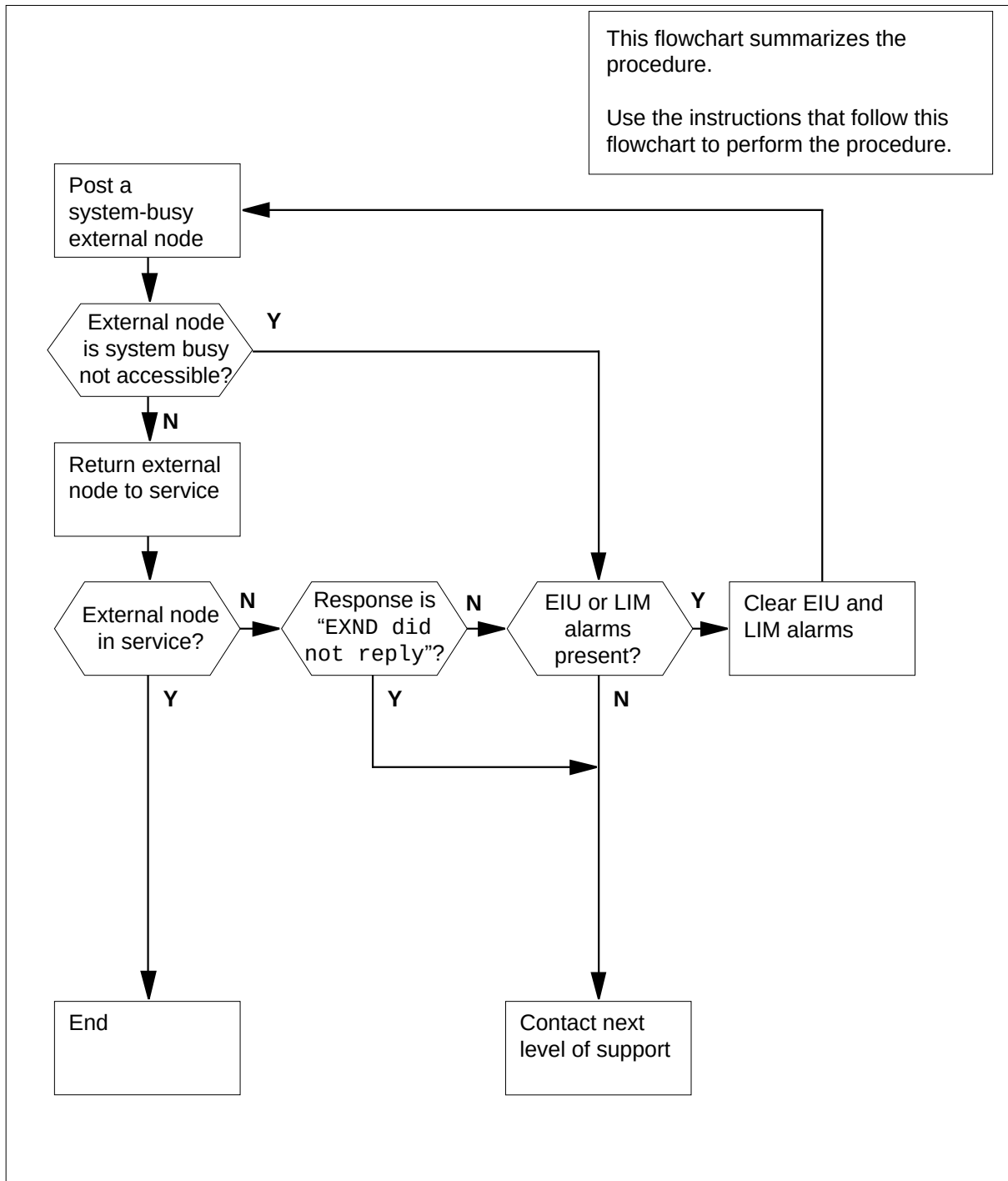
The external node is out of service. The external node cannot receive and store message signaling units that the EIUs transmit.

**Common procedures**

There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM EXND  
minor** (continued)**Summary of clearing a PM EXND minor alarm**

PM EXND  
minor (continued)

Clearing a PM EXND minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP, type  
> **MAPCI;MTC;PM**  
and press the Enter key.
- 2 To post the system-busy external nodes, type  
> **POST EXND SYSB**  
and press the Enter key.

Example of a MAP display:

|      | SysB | ManB | OffL | CBsy | ISTB | InSv |
|------|------|------|------|------|------|------|
| PM   | 1    | 0    | 0    | 0    | 0    | 30   |
| EXND | 1    | 0    | 0    | –    | 0    | 0    |

EXND 0 BCARH388  
ESTP  
SysB

- 3 Determine the state of the external node.  
**Note:** The state of the node appears under the EXND header.

| If the external node | Do     |
|----------------------|--------|
| is SysB (NA)         | step 4 |
| is SysB              | step 5 |

- 4 To obtain more information about the system-busy external node, type  
> **QUERYPM**  
and press the Enter key.

Example of a MAP response:

ENTYPE HP  
ENSITE CARLING  
ENLOCN 2 H 11  
EIUS NOT AVAILABLE FOR REQUESTS

**Note:** In the MAP response, HP indicates a Hewlett Packard external node. CARLING is the site name of the building that contains the external node. The location of the external node-floor 2, row H and bay 11 is 2 H 11. EIUs NOT AVAILABLE FOR REQUEST indicates that the Ethernet interface units are not available for the transmission of message blocks. EIUs NOT AVAILABLE FOR REQUEST also indicates that the Ethernet

## PM EXND minor (continued)

interface units are not available for the transmission of control messages.  
The Ethernet interface units communicate with the external node.

|          | <b>If the response indicates that the EIUs</b>                                                                                                                                                               | <b>Do</b> |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|          | is available for requests                                                                                                                                                                                    | step 5    |
|          | is not available for requests                                                                                                                                                                                | step 10   |
| <b>5</b> | Wait 2 m for the system to clear the fault. If the system does not clear the fault, manually busy the external node. To manually busy the external node, type<br><b>&gt; BSY</b><br>and press the Enter key. |           |
| <b>6</b> | To test the external node, type<br><b>&gt; TST</b><br>and press the Enter key.                                                                                                                               |           |
|          | <b>If the TST command</b>                                                                                                                                                                                    | <b>Do</b> |
|          | passed                                                                                                                                                                                                       | step 7    |
|          | failed                                                                                                                                                                                                       | step 9    |
| <b>7</b> | To return the external node to service, type<br><b>&gt; RTS</b><br>and press the Enter key.                                                                                                                  |           |
|          | <b>If the RTS command</b>                                                                                                                                                                                    | <b>Do</b> |
|          | passed                                                                                                                                                                                                       | step 8    |
|          | failed                                                                                                                                                                                                       | step 9    |
| <b>8</b> | To move the next system-busy external node into the control position, type<br><b>&gt; NEXT</b><br>and press the Enter key.<br>Go to step 3.                                                                  |           |
| <b>9</b> | Determine the MAP response that the command produces.                                                                                                                                                        |           |
|          | <b>If the response</b>                                                                                                                                                                                       | <b>Do</b> |
|          | is EXND did not reply                                                                                                                                                                                        | step 13   |
|          | is EIU not available for requests                                                                                                                                                                            | step 10   |

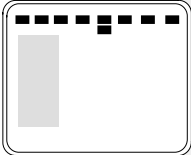
**PM EXND**  
**minor** (end)

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|           |                                                                                                                                                |           |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | <b>If the response</b>                                                                                                                         | <b>Do</b> |
|           | is SYSTEM ERROR                                                                                                                                | step 13   |
| <b>10</b> | Determine if EIU or LIM alarms are present.                                                                                                    |           |
|           | <b>If EIU or LIM alarms</b>                                                                                                                    | <b>Do</b> |
|           | are present                                                                                                                                    | step 11   |
|           | are not present                                                                                                                                | step 13   |
| <b>11</b> | Clear the EIU or LIM alarms. Perform the correct alarm clearing procedures in this document. Complete the procedures and return to this point. |           |
| <b>12</b> | Determine if the EXND minor alarm cleared.                                                                                                     |           |
|           | <b>If the EXND alarm</b>                                                                                                                       | <b>Do</b> |
|           | cleared                                                                                                                                        | step 14   |
|           | did not clear                                                                                                                                  | step 13   |
| <b>13</b> | For additional help, contact the next level of support.                                                                                        |           |
| <b>14</b> | The procedure is complete.                                                                                                                     |           |

## PM FP critical

### Alarm display

|                                                                                   |    |    |     |     |             |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>   | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1 FP</b> | .   | .   | .    | .   | .    |
|                                                                                   |    |    |     |     | <b>*C*</b>  |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the MAP alarm banner. FP indicates a critical alarm for the file processor (FP).

### Meaning

If the system removes an FP from service, the FP shows a critical alarm.

The number under the PM header in the alarm banner indicates the number of the affected FPs.

### Result

The FP is separate from the rest of the system. This separation affects the performance of applications that use the FP.

### Common procedures

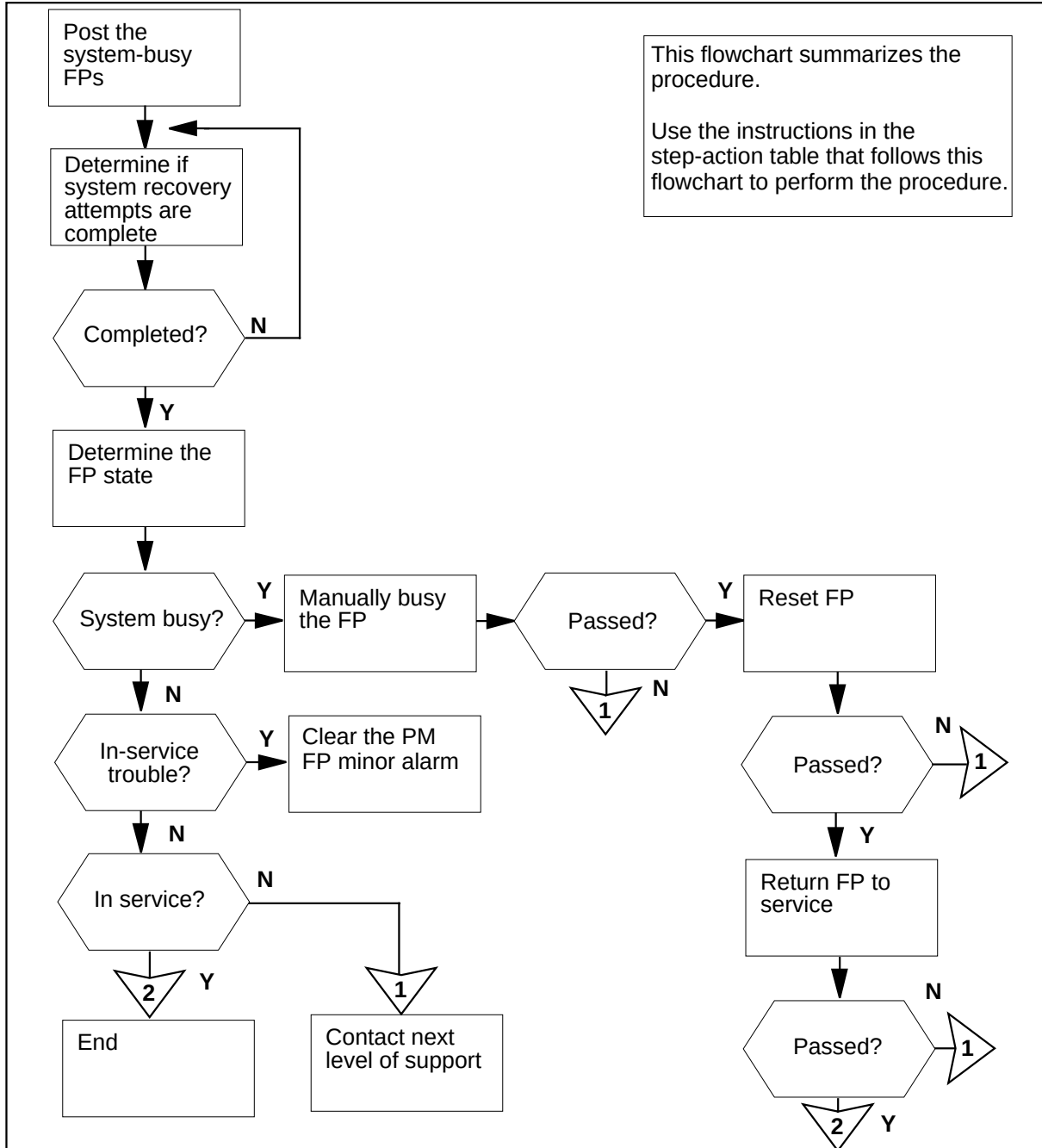
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP critical (continued)

### Summary of clearing a PM FP critical alarm





## PM FP critical (continued)

### Clearing a PM FP critical alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

**>MAPCI;MTC;PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 1    | 0    | 0    | 0    | 0    | 39   |

- 2 To post the system-busy FPs, type

**>POST FP SYSB**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 1    | 0    | 0    | 0    | 0    | 39   |
| FP | 3    | 0    | 0    | 0    | 0    | 7    |

|       |         |       |         |
|-------|---------|-------|---------|
| FP 0: | FP0_256 | Plane | Devices |
| SysB  | /Mtce   | .     | .       |

**Note:** In this example of a MAP response, FP 0 is the first system busy FP in the posted set.

- 3 Determine if the /Mtce flag is present.

**Note:** On the right side of the FP state in the MAP display is a field that contains the flag /Mtce. The flag is present if a maintenance action occurs on the FP.

| If the /Mtce flag | Do     |
|-------------------|--------|
| is present        | step 4 |
| is not present    | step 5 |

- 4 Wait 5 min for the system to complete recovery attempts. Go to step 3.

- 5 Determine the state of the FP.

**Note:** In the example of a MAP response in step 2, the FP state is SysB.

| If the FP state | Do     |
|-----------------|--------|
| is SysB         | step 7 |

## PM FP critical (continued)

|   | If the FP state                                                                                                                                                                                                                                                 | Do      |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|   | is ISTb                                                                                                                                                                                                                                                         | step 6  |
|   | is InSv                                                                                                                                                                                                                                                         | step 15 |
| 6 | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.                                                                                                                                                                                     |         |
| 7 | To manually busy the system busy FP, type<br><b>&gt;BSY</b><br>and press the Enter key.                                                                                                                                                                         |         |
|   | If the BSY command                                                                                                                                                                                                                                              | Do      |
|   | passed                                                                                                                                                                                                                                                          | step 8  |
|   | failed                                                                                                                                                                                                                                                          | step 16 |
| 8 | To set the manually-busy FP again, type<br><b>&gt;PMRESET</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>FP 0 Reset PM: Request has been submitted.<br>FP 0 Reset PM: Command completed. Reload restart<br>completed successfully. |         |
|   | If the PMRESET command                                                                                                                                                                                                                                          | Do      |
|   | passed                                                                                                                                                                                                                                                          | step 9  |
|   | failed                                                                                                                                                                                                                                                          | step 16 |
| 9 | To return the manually-busy FP to service, type<br><b>&gt;RTS</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>FP 0 RTS PM: Request has been submitted.<br>FP 0 RTS PM: Command completed. The PM is in service.                     |         |
|   | If the RTS command                                                                                                                                                                                                                                              | Do      |
|   | passed                                                                                                                                                                                                                                                          | step 15 |
|   | failed. The system generated a<br>card list                                                                                                                                                                                                                     | step 10 |

## PM FP critical (continued)

|    | If the RTS command                                                                                                                                             | Do      |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | failed. The system did not generate a card list                                                                                                                | step 16 |
| 10 | Record the location, product engineering code, and PEC suffix of the first card on the card list.                                                              |         |
| 11 | To replace the card, use the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.       |         |
| 12 | To post the FP, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no</b><br>and press the Enter key.<br><i>where</i><br><b>fp_no</b><br>is the number of the FP (0 to 12) |         |
| 13 | To return the FP to service, type<br><b>&gt;RTS</b><br>and press the Enter key.                                                                                |         |
|    | If the RTS command                                                                                                                                             | Do      |
|    | passed                                                                                                                                                         | step 15 |
|    | failed. You did not replace all cards on the list                                                                                                              | step 14 |
|    | failed. You replaced all cards on the list                                                                                                                     | step 16 |
|    | failed. The system did not generate a card list                                                                                                                | step 16 |
| 14 | Record the location, product engineering code, and PEC suffix of the next card on the card list.<br>Go to step 11.                                             |         |
| 15 | To post the next system busy FP, type<br><b>&gt;NEXT</b><br>and press the Enter key.                                                                           |         |
|    | If more system busy FPs                                                                                                                                        | Do      |
|    | are present                                                                                                                                                    | step 3  |
|    | are not present                                                                                                                                                | step 17 |

**PM FP**  
**critical** (end)

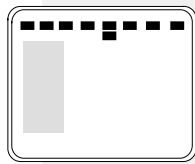
---

- 16 For additional help, contact the next level of support.
- 17 The procedure is complete.

---

**PM FP**  
**major**


---

**Alarm display**

| CM | MS | IOD | Net | PM         | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1FP</b> | .   | .   | .    | .   | .    |
|    |    |     |     | <b>M</b>   |     |     |      |     |      |

**Indication**

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the alarm banner. The FP indicates a major alarm for the file processor (FP).

**Meaning**

Manual removal of an FP from service causes the FP to display a major alarm.

The number under the PM header in the alarm banner indicates the number of affected FPs.

**Result**

The FPs are separate from the rest of the system. This separation affects the performance of applications that use the FP.

**Common procedures**

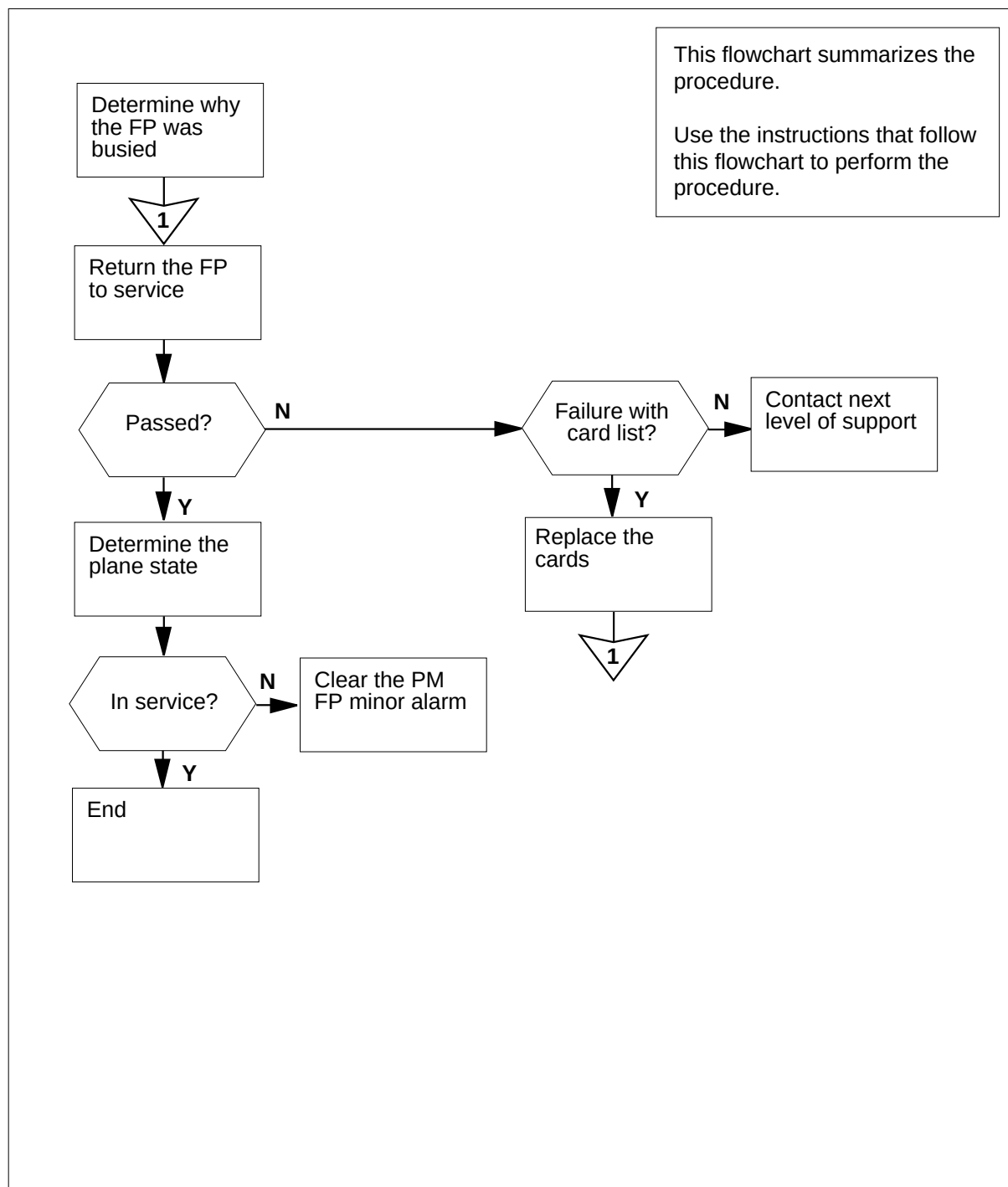
There are no common procedures.

**Action**

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

## PM FP major (continued)

### Summary of clearing a PM FP major alarm



## PM FP major (continued)

### Clearing a PM FP major alarm

#### At the MAP display

- 1** To access the PM level of the MAP display, type

**>MAPCI ; MTC ; PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 0    | 2    | 6    | 0    | 1    | 32   |

- 2** To post the manually-busy FPs, type

**>POST FP MANB**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 0    | 2    | 6    | 0    | 1    | 32   |
| FP | 0    | 2    | 0    | 0    | 1    | 7    |

|           |         |       |         |
|-----------|---------|-------|---------|
| FP 3:     | FP3_256 | Plane | Devices |
| ManB (NA) |         | .     | .       |

**Note:** In the example of a preceding MAP response, FP 3 is the first manually-busy FP in the posted set.

- 3** Determine from office records or from operating company personnel why the FP is manually-busy.

| If                                  | Do      |
|-------------------------------------|---------|
| you can return the FP to service    | step 4  |
| you cannot return the FP to service | step 12 |

- 4** To return the FP to service, type

**>RTS**

and press the Enter key.

*Example of a MAP response:*

## PM FP major (continued)

FP 3 RTS PM: Request has been submitted.  
FP 3 RTS PM: Command completed. The PM is in service.

|    | If the RTS command                                                                                                                                                                                                                                             | Do      |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | passed                                                                                                                                                                                                                                                         | step 10 |
|    | failed, and the system generated a card list                                                                                                                                                                                                                   | step 5  |
|    | failed, and the system generated a card list                                                                                                                                                                                                                   | step 13 |
| 5  | Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.                                                                                                                                                        |         |
| 6  | To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                        |         |
| 7  | To post the FP, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no</b><br>and press the Enter key.<br><i>where</i><br><b>fp_no</b><br>is the number of the file processor (0 to 12)                                                                                     |         |
| 8  | To return the FP to service, type<br><b>&gt;RTS</b><br>and press the Enter key.                                                                                                                                                                                |         |
|    | If the RTS command                                                                                                                                                                                                                                             | Do      |
|    | passed                                                                                                                                                                                                                                                         | step 10 |
|    | failed, and you did not replace all cards on the list                                                                                                                                                                                                          | step 9  |
|    | failed, and you replaced all cards on the list                                                                                                                                                                                                                 | step 13 |
|    | failed, and the system did not generate a card list                                                                                                                                                                                                            | step 13 |
| 9  | Record the location, PEC, and PEC suffix of the next card on the card list.<br>Go to step 6.                                                                                                                                                                   |         |
| 10 | Determine the Plane state of the posted FP.<br><br><b>Note:</b> A dot (.) under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault. In the example of a MAP display in step 2, the FP planes are . (in service). |         |
|    | If the Plane state                                                                                                                                                                                                                                             | Do      |
|    | is .(in service)                                                                                                                                                                                                                                               | step 12 |



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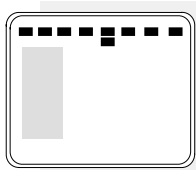
**PM FP**  
**major (end)**

---

- |           | <b>If the Plane state</b>                                                              | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------|-----------|
|           | is other than listed here                                                              | step 11   |
| <b>11</b> | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.            |           |
| <b>12</b> | To post the next manually-busy FP, type<br><b>&gt;NEXT</b><br>and press the Enter key. |           |
|           | <b>If more manually-busy FPs</b>                                                       | <b>Do</b> |
|           | are present                                                                            | step 3    |
|           | are not present                                                                        | step 14   |
| <b>13</b> | For additional help, contact the next level of support.                                |           |
| <b>14</b> | The procedure is complete.                                                             |           |

**PM FP**  
**minor**

**Alarm display**

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | .                       | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP).

**Meaning**

A minimum of one FP has in-service trouble.

The number under the PM header in the alarm banner indicates the number of affected FPs.

**Result**

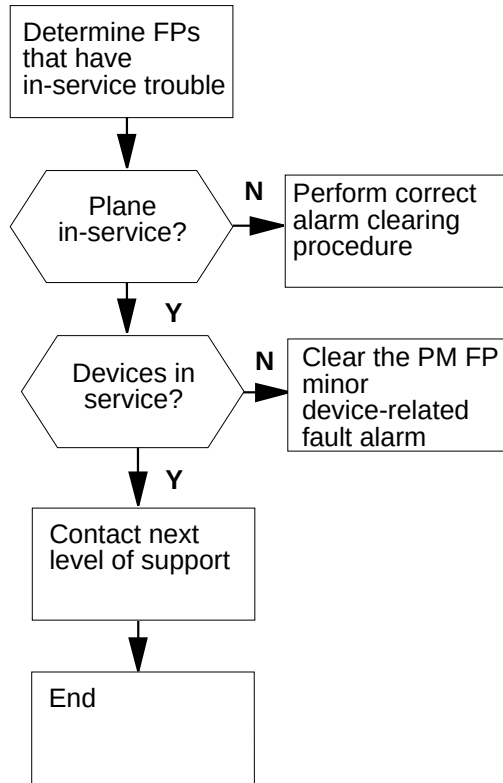
There is no result.

**Common procedures**

There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP**  
**minor** (continued)**Summary of Clearing a PM FP minor alarm**

This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

## PM FP minor (continued)

---

### Clearing a PM FP minor alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type  
**>MAPCI;MTC;PM**  
and press the Enter key.

*Example of a MAP display:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 0    | 0    | 0    | 0    | 2    | 39   |

- 2 To post the FPs that have in-service trouble, type  
**>POST FP ISTB**  
and press the Enter key.

*Example of a MAP display:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | Offl | CBsy | ISTb | InSv |
| PM | 1    | 0    | 0    | 0    | 0    | 39   |
| FP | 0    | 0    | 0    | 0    | 2    | 7    |

|       |         |        |         |
|-------|---------|--------|---------|
| FP 3: | FP3_256 | Plane  | Devices |
| Istb  |         | LowMem | .       |

**Note:** In the preceding MAP response, FP 3 is the first in-service trouble FP in the posted set.

- 3 Determine the plane state of the posted FP.  
**Note:** The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

| If the Plane state | Do      |
|--------------------|---------|
| is . (in service)  | step 4  |
| is LowMem          | step 5  |
| is Trap            | step 6  |
| is CPUFlt          | step 7  |
| is PrtFlt          | step 8  |
| is NoSync          | step 9  |
| is PrtTbl          | step 10 |
| is MemFlt          | step 11 |

---

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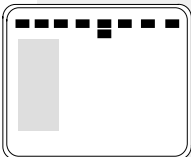
**PM FP  
minor (end)**


---

|           | <b>If the Plane state</b>                                                                                                                                                             | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is MemCor                                                                                                                                                                             | step 12   |
|           | is JInact                                                                                                                                                                             | step 13   |
|           | is MMThrs                                                                                                                                                                             | step 14   |
|           | is NoOvr                                                                                                                                                                              | step 15   |
| <b>4</b>  | Determine the Devices state of the posted FP.<br><b>Note:</b> The symbol . under the Devices header indicates that the FP devices are in service. Any other symbol indicates a fault. |           |
|           | <b>If the Devices state</b>                                                                                                                                                           | <b>Do</b> |
|           | is . (in service)                                                                                                                                                                     | step 17   |
|           | is other than listed here                                                                                                                                                             | step 16   |
| <b>5</b>  | Perform the procedure <i>Clearing a PM FP LowMem minor alarm</i> in this document.                                                                                                    |           |
| <b>6</b>  | Perform the procedure <i>Clearing a PM FP Trap minor alarm</i> in this document.                                                                                                      |           |
| <b>7</b>  | Perform the procedure <i>Clearing a PM FP CPUFlt minor alarm</i> in this document.                                                                                                    |           |
| <b>8</b>  | Perform the procedure <i>Clearing a PM FP PrtFlt minor alarm</i> in this document.                                                                                                    |           |
| <b>9</b>  | Perform the procedure <i>Clearing a PM FP NoSync minor alarm</i> in this document.                                                                                                    |           |
| <b>10</b> | Perform the procedure <i>Clearing a PM FP PrtTbl minor alarm</i> in this document.                                                                                                    |           |
| <b>11</b> | Perform the procedure <i>Clearing a PM FP MemFlt minor alarm</i> in this document.                                                                                                    |           |
| <b>12</b> | Perform the procedure <i>Clearing a PM FP MemCor minor alarm</i> in this document.                                                                                                    |           |
| <b>13</b> | Perform the procedure <i>Clearing a PM FP JInact minor alarm</i> in this document.                                                                                                    |           |
| <b>14</b> | Perform the procedure <i>Clearing a PM FP MMThrs minor alarm</i> in this document.                                                                                                    |           |
| <b>15</b> | Perform the procedure <i>Clearing a PM FP NoOvr minor alarm</i> in this document.                                                                                                     |           |
| <b>16</b> | Perform the procedure <i>Clearing a PM FP device-related fault minor alarm</i> in this document.                                                                                      |           |
| <b>17</b> | For additional help, contact the next level of support.                                                                                                                               |           |
| <b>18</b> | The procedure is complete.                                                                                                                                                            |           |

**PM FP**  
**CPUFlt minor**

**Alarm display**

|                                                                                   |    |    |     |     |                          |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1 FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | .                        | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP displays CPUFlt.

**Meaning**

A fault is present on one of the CPUs in the FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

**Result**

The FP can run out of sync and the fault can occur on the active plane. When these problems occur, the system performs a cold restart on the FP.

**Common procedures**

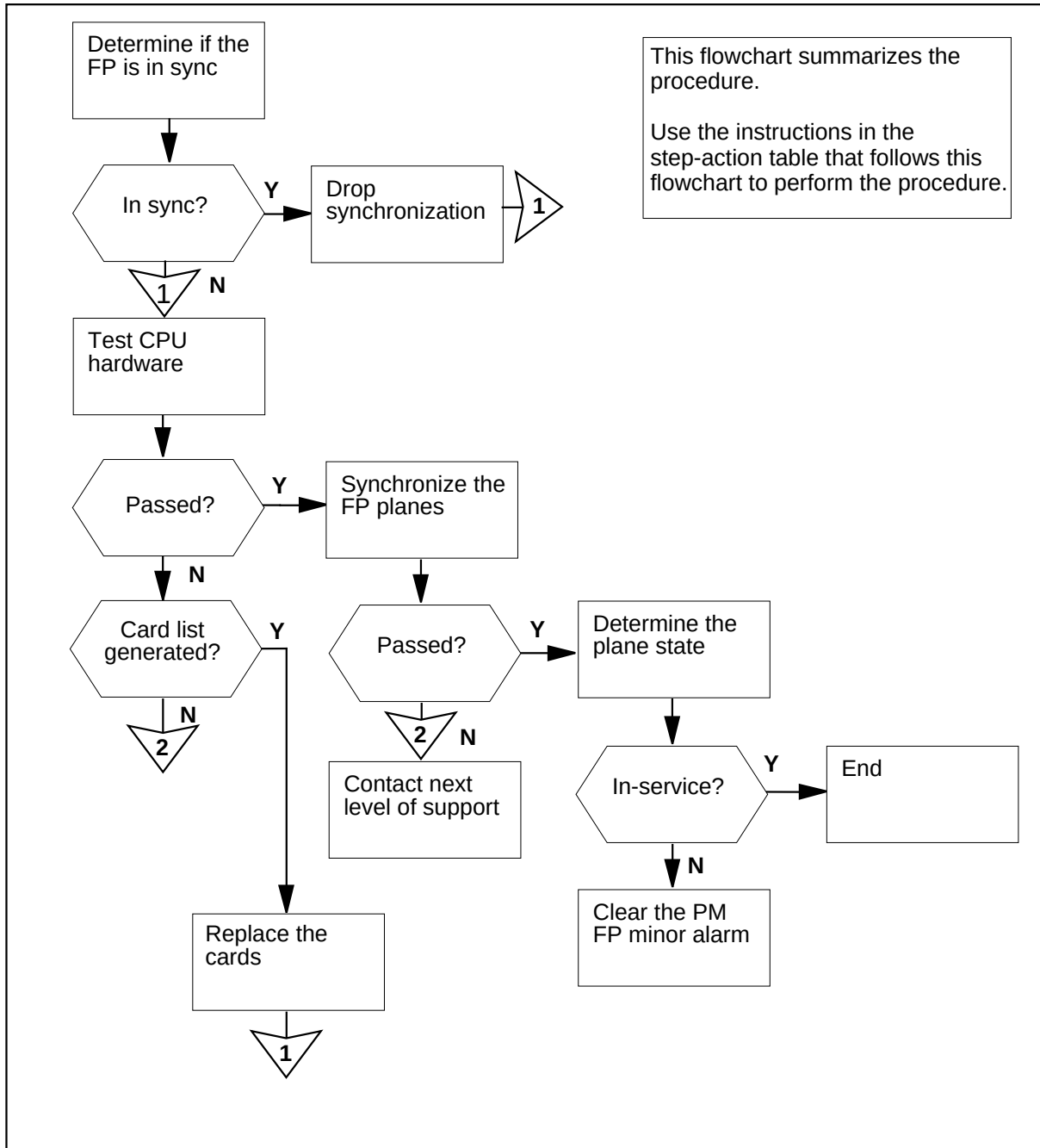
There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP CPUFlt minor (continued)

### Summary of clearing a PM FP CPUFlt minor alarm



PM FP  
CPUFlt minor (continued)

Clearing a PM FP CPUFlt minor alarm

At the MAP display

- 1 Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directed you to this procedure.
- 2 To access the Plane level of the MAP display of the FP that is in-service trouble, type

>PLANE

and press the Enter key.

Example of a MAP display:

|         |           |        |         |      |       |       |
|---------|-----------|--------|---------|------|-------|-------|
| FP 3:   | FP1_SR256 | Plane  | Devices |      |       |       |
| ISTb    |           | CPUFlt | .       |      |       |       |
| Sync    | CPU       | Jam    | DRAM    | Port | MsgCh | PLink |
| No      | state act |        | 0123    | Card | 0 1   | 0 1   |
| Plane 0 | .         | A      | -...    | .    | .     | .     |
| Plane 1 | F         | I      | No      | -... | .     | .     |

- 3 Determine if the CPU jammed.
- Note:** The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

| If the CPU  | Do     |
|-------------|--------|
| jammed      | step 5 |
| did not jam | step 4 |

- 4 To jam the inactive CPU, type

>MATEJAM SET

and press the Enter key.

Example of a MAP response:

FP 3 Jam Mate: Request has been submitted.  
FP 3 Jam Mate Command completed.  
The inactive CPU is jammed



---

**PM FP**  
**CPUFlt minor** (continued)

---

- 5 Determine if the FP is in sync.

**Note:** The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

| If the FP      | Do     |
|----------------|--------|
| is in sync     | step 6 |
| is not in sync | step 8 |

---

- 6 To drop the synchronization, type

**>DPSYNC**

and press the Enter key.

*Example of a MAP response:*

If you intend to jam the inactive CPU, Please do so before dropping synchronization.  
Please confirm ("YES" or "NO"):

- 7 To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 3 Drop synchronization: Request has been submitted.  
FP 3 Drop synchronization: Command completed.  
Now running in simplex mode with CPU 0 active.

- 8 To test the inactive CPU hardware in the FP, type

**>TST CPU HW**

and press the Enter key.

*Example of a MAP response:*

CPU test of Static Ram will corrupt the load in the inactive CPU.  
Please confirm ("YES", "Y", "NO", or "N"):

- 9 To confirm the command, type

**>YES**

and press the Enter key.

| If the TST command | Do      |
|--------------------|---------|
| passed             | step 16 |

---

## PM FP

### CPUFit minor (continued)

|         | If the TST command                                                                                                                                                                                                                                                                                                                                                                                       | Do      |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|------|-------|-------|------|-------|-------|----|-----------|--|------|------|-----|-----|---------|-----|--|------|---|---|---|---------|-----|----|------|---|---|---|
|         | failed, and the system generated a card list                                                                                                                                                                                                                                                                                                                                                             | step 10 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
|         | failed, and the system did not generate a card list                                                                                                                                                                                                                                                                                                                                                      | step 25 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| 10      | Record the location, a product engineering code (PEC), and PEC suffix of the first card on the card list.                                                                                                                                                                                                                                                                                                |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| 11      | To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                                                                                                                                                                  |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| 12      | To access the Plane level of the MAP display of the FP that is in-service trouble, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no;PLANE</b><br>and press the Enter key.<br>where<br><b>fp_no</b><br>is the number of the file processor (0 to 12)<br><i>Example of a MAP display:</i>                                                                                                                         |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
|         | <table><tr><td>Sync</td><td>CPU</td><td>Jam</td><td>DRAM</td><td>Port</td><td>MsgCh</td><td>PLink</td></tr><tr><td>No</td><td>state act</td><td></td><td>0123</td><td>Card</td><td>0 1</td><td>0 1</td></tr><tr><td>Plane 0</td><td>. A</td><td></td><td>-...</td><td>.</td><td>.</td><td>.</td></tr><tr><td>Plane 1</td><td>F I</td><td>No</td><td>-...</td><td>.</td><td>.</td><td>.</td></tr></table> |         | Sync | CPU  | Jam   | DRAM  | Port | MsgCh | PLink | No | state act |  | 0123 | Card | 0 1 | 0 1 | Plane 0 | . A |  | -... | . | . | . | Plane 1 | F I | No | -... | . | . | . |
| Sync    | CPU                                                                                                                                                                                                                                                                                                                                                                                                      | Jam     | DRAM | Port | MsgCh | PLink |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| No      | state act                                                                                                                                                                                                                                                                                                                                                                                                |         | 0123 | Card | 0 1   | 0 1   |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| Plane 0 | . A                                                                                                                                                                                                                                                                                                                                                                                                      |         | -... | .    | .     | .     |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| Plane 1 | F I                                                                                                                                                                                                                                                                                                                                                                                                      | No      | -... | .    | .     | .     |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| 13      | To test the inactive CPU hardware in the FP, type<br><b>&gt;TST CPU HW</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>CPU test of Static Ram will corrupt the load in the inactive CPU.<br>Please confirm ("YES", "Y", "NO", or "N"):                                                                                                                                       |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
| 14      | To confirm the command, type<br><b>&gt;YES</b><br>and press the Enter key.                                                                                                                                                                                                                                                                                                                               |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
|         | If the TST command                                                                                                                                                                                                                                                                                                                                                                                       | Do      |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |
|         | passed                                                                                                                                                                                                                                                                                                                                                                                                   | step 16 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |     |  |      |   |   |   |         |     |    |      |   |   |   |

**PM FP**  
**CPUFlt minor** (continued)

|           | If the TST command                                                                                                                                                                                                                                                        | Do               |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|           | failed. You did not replace all cards on the list                                                                                                                                                                                                                         | step 15          |
|           | failed. You replaced all cards on the list                                                                                                                                                                                                                                | step 25          |
|           | failed. The system did not generate a card list                                                                                                                                                                                                                           | step 25          |
| <b>15</b> | Record the location, product engineering code (PEC), and PEC suffix of the next card on the list.<br>Go to step 11.                                                                                                                                                       |                  |
| <b>16</b> | To synchronize the planes of the FP, type<br><b>&gt;SYNC</b><br>and press the Enter key.                                                                                                                                                                                  |                  |
|           | If the SYNC command                                                                                                                                                                                                                                                       | Do               |
|           | passed                                                                                                                                                                                                                                                                    | step 22          |
|           | failed, and the system generated a card list                                                                                                                                                                                                                              | step 17          |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                       | step 25          |
| <b>17</b> | Record the location, PEC, and PEC suffix of the first card on the card list.                                                                                                                                                                                              |                  |
| <b>18</b> | To replace the card, use the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                  |                  |
| <b>19</b> | To access the Plane level of the MAP display of the FP that is in-service trouble, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no;PLANE</b><br>and press the Enter key.<br>where<br><b>fp_no</b><br>is the number of the file processor (0 to 12)<br>Example of a MAP display: |                  |
|           | Sync<br>No                                                                                                                                                                                                                                                                | CPU<br>state act |
|           | Plane 0                                                                                                                                                                                                                                                                   | . A              |
|           | Plane 1                                                                                                                                                                                                                                                                   | . I              |
|           |                                                                                                                                                                                                                                                                           | Jam<br>No        |
|           |                                                                                                                                                                                                                                                                           | DRAM<br>0123     |
|           |                                                                                                                                                                                                                                                                           | Port<br>Card     |
|           |                                                                                                                                                                                                                                                                           | MsgCh<br>0 1     |
|           |                                                                                                                                                                                                                                                                           | PLink<br>0 1     |

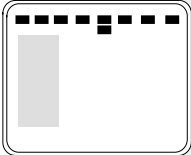
**PM FP**  
**CPUFlt minor (end)**

---

- 20** To synchronize the planes of the FP, type  
**>SYNC**  
and press the Enter key.
- | <b>If the SYNC command</b>                        | <b>Do</b> |
|---------------------------------------------------|-----------|
| passed                                            | step 22   |
| failed. You did not replace all cards on the list | step 21   |
| failed. You replaced all cards on the list        | step 25   |
| failed. The system did not generate a card list   | step 25   |
- 21** Record the location, product engineering code (PEC) and PEC suffix of the next card on the list.  
Go to step 18.
- 22** To release the jam on the inactive CPU, type  
**>MATEJAM RELEASE**  
and press the Enter key.  
*Example of a MAP response:*
- FP 3 Jam Mate: Request has been submitted.  
FP 3 Jam Mate Command completed.  
The inactive CPU is jammed
- 23** Determine the Plane state of the posted FP.  
**Note:** The dot symbol (.) under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.
- | <b>If the Plane state</b> | <b>Do</b> |
|---------------------------|-----------|
| is (in service)           | step 26   |
| is CPUFlt                 | step 25   |
| is other than listed here | step 24   |
- 24** Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 25** For additional help, contact the next level of support.
- 26** The procedure is complete.

## PM FP device-related fault minor

### Alarm display

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | .                       | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor.

### Meaning

A DABM, small computer system interface (SCSI), or device is out of service, or has in-service trouble. The Devices state field of the posted FP indicates the most severe fault present on the FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

### Result

The out-of-service or in-service trouble state affects the performance of applications that use this FP.

**Note:** If a device that has faults is part of a shadow set, a drop in the performance of applications that use this FP occurs. This drop occurs for a period of time after the alarm clears. When the device is in sync with the rest of the shadow set, the performance becomes normal again.

### Common procedures

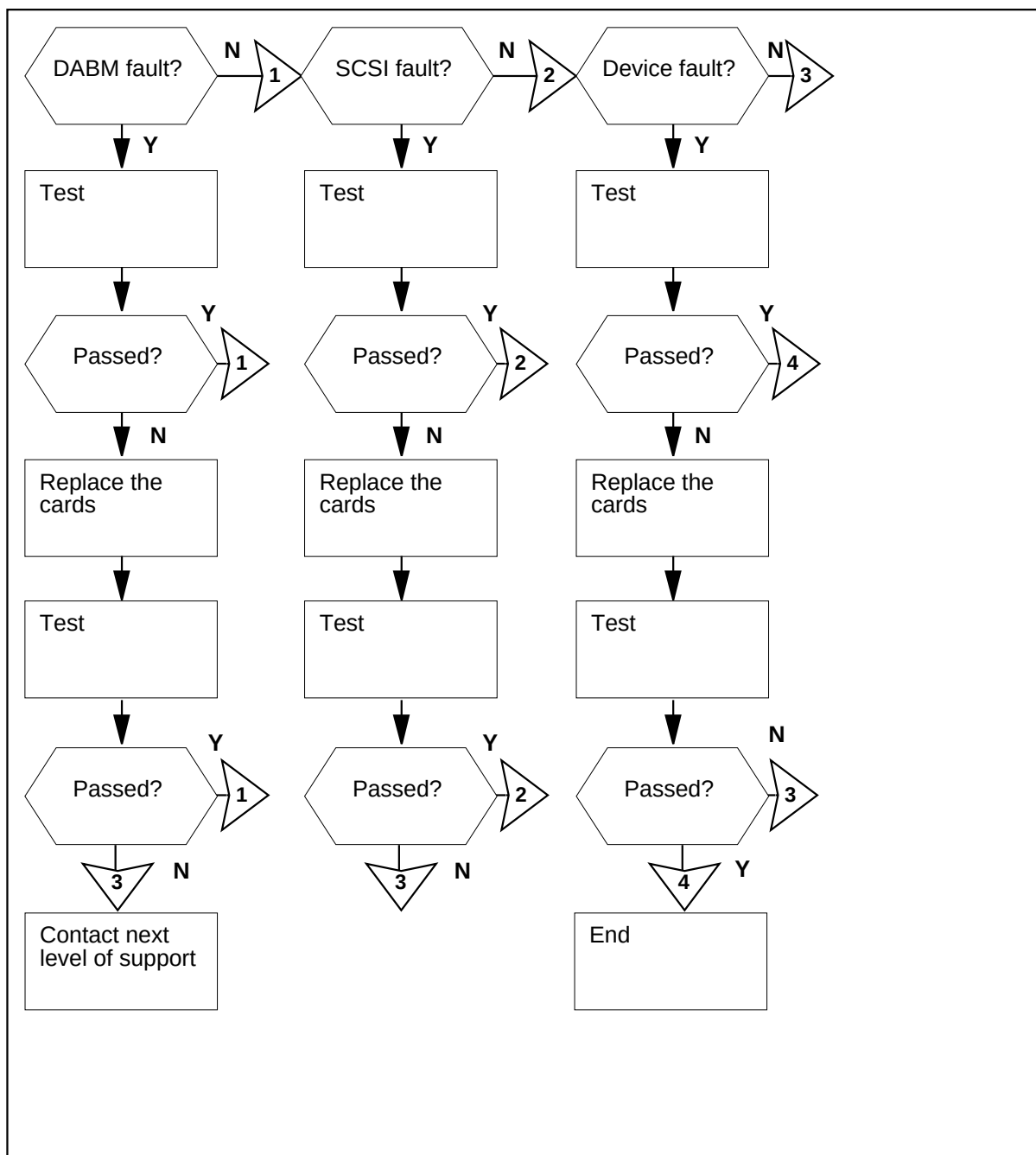
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP device-related fault minor (continued)

### Summary of clearing a PM FP device-related fault minor alarm



## PM FP

### device-related fault minor (continued)

#### Clearing a PM FP device-related fault minor alarm

##### *At the MAP terminal*

- 1 Proceed only if the procedure *How to clear a PM FP minor alarm* in this document directed you to this procedure.
- 2 To access the Devices level of the MAP display of the FP that has a device-related fault, type

**>DEVICES**

and press the Enter key.

*Example of a MAP display:*

```

FP 1: FP1_R256 Plane Devices
ISTb . 1SysB

 CTRL0 CTRL1 DEVICE
DABM . . 0 1 2 3 4 5
SCSI 0 . (EN) . (DIS) -
SCSI 1 . (EN) S (DIS) -

```

- 3 Determine the state of the DABMs. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:
  - faulty (F)
  - in-service trouble (I)

**Note:** In the example of a MAP display in step 2, the DABM for controller 1 has faults.

| If the DABM state | Do      |
|-------------------|---------|
| is F              | step 4  |
| is I              | step 4  |
| is . (in service) | step 10 |

- 4 To run a REx test on all the device components, type

**>TST ALL REX**

and press the Enter key.

| If the TST command | Do      |
|--------------------|---------|
| passed             | step 10 |

## PM FP

### device-related fault minor (continued)

|   | If the TST command                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Do      |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|   | failed, and the system generated a card list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | step 5  |
|   | failed, and the system did not generate a card list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 48 |
| 5 | Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |
| 6 | To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                                                                                                                                                                                                                                                                                                                            |         |
| 7 | To access the Devices level of the FP that has a device-related fault, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no;DEVICES</b><br>and press the Enter key.<br><i>where</i><br><b>fp_no</b><br>is the number of the file processor (0 to 12)<br><i>Example of a MAP display:</i> <pre> FP 1:   FP1_R256   Plane   Devices ISTb           .      2SysB            CTRL0          CTRL1          DEVICE DABM           .          F          0 1 2 3 4 5 SCSI 0         . (EN)      . (DIS)      . . . . . - SCSI 1         . (EN)      S (DIS)      . . . . . - </pre> |         |
| 8 | To run a REx test on all the device components, type<br><b>&gt;TST ALL REX</b><br>and press the Enter key.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
|   | If the TST command                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Do      |
|   | passed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | step 10 |
|   | failed, and you did not replace all cards on the list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | step 9  |
|   | failed, and you replaced all cards on the list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | step 48 |
|   | failed, and the system did not generate a card list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 48 |



**PM FP****device-related fault minor** (continued)

- 9** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 6.

- 10** Determine the state of the SCSI buses. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:

- system busy (S)
- manually busy (M)
- in-service trouble (I)

**Note:** In the example of a MAP display in step 2, SCSI bus 1 of controller 1 is system busy.

| <b>If the SCSI bus state</b> | <b>Do</b> |
|------------------------------|-----------|
| is S                         | step 12   |
| is M                         | step 11   |
| is I                         | step 12   |
| is . (in service)            | step 22   |

- 11** Determine from office records or operating company personnel why the SCSI bus is manual busy.

| <b>If you</b>                         | <b>Do</b> |
|---------------------------------------|-----------|
| can return the SCSI bus to service    | step 15   |
| cannot return the SCSI bus to service | step 22   |

- 12** Determine if the SCSI bus that has faults is enabled.

| <b>If the SCSI bus</b> | <b>Do</b> |
|------------------------|-----------|
| is enabled (EN)        | step 13   |
| is disabled (DIS)      | step 14   |

- 13** To switch enable the SCSI bus, type

**>SWEN    scsi\_no**

and press the Enter key.

where

**scsi\_no**

is the number of the SCSI bus (0 or 1) that has faults

## PM FP device-related fault minor (continued)

---

- 14** To manually busy the SCSI bus, type  
**>BSY SCSI scsi\_no ctrl\_no**  
and press the Enter key.  
*where*  
**scsi\_no**  
is the number of the disabled SCSI bus (0 or 1)  
**ctrl\_no**  
is the number of the controller (0 or 1)

- 15** To return the SCSI bus to service, type  
**>RTS SCSI scsi\_no ctrl\_no**  
and press the Enter key.  
*where*  
**scsi\_no**  
is the number of the disabled SCSI bus (0 or 1)  
**ctrl\_no**  
is the number of the controller (0 or 1)

---

| If the RTS command                                  | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 21 |
| failed, and the system generated a card list        | step 16 |
| failed, and the system did not generate a card list | step 48 |

---

- 16** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.

- 17** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 18** To access the Devices level of the FP that has a device-related fault, type  
**>MAPCI;MTC;PM;POST FP fp\_no;DEVICES**  
and press the Enter key.

*where*  
**fp\_no**  
is the number of the file processor (0 to 12)

*Example of a MAP display:*

**PM FP****device-related fault minor (continued)**

```

FP 1: FP1_R256 Plane Devices
ISTb . 2SysB

 CTRL0 CTRL1 DEVICE
DABM . . 0 1 2 3 4 5
SCSI 0 . (EN) . (DIS) -
SCSI 1 . (EN) S (DIS) S -

```

- 19** To return the SCSI bus to service, type

**>RTS SCSI scsi\_no ctrl\_no**

and press the Enter key.

where

**scsi\_no**

is the number of the SCSI bus (0 or 1)

**ctrl\_no**

is the number of the controller (0 or 1)

---

**If the RTS command**

**Do**

---

|                                                       |         |
|-------------------------------------------------------|---------|
| passed                                                | step 21 |
| failed, and you did not replace all cards on the list | step 20 |
| failed, and you replaced all cards on the list        | step 48 |
| failed, and the system did not generate a card list   | step 48 |

---

- 20** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 17.

- 21** Determine the SCSI bus states of the posted FP.

**Note:** In the example of a MAP display in step 18, all of the SCSI buses are in service except SCSI bus 1 of controller 1. The SCSI bus 1 of controller 1 is system busy.

---

**If a SCSI bus field**

**Do**

---

|                                                             |         |
|-------------------------------------------------------------|---------|
| shows a value other than in service (.) or not equipped (-) | step 10 |
| shows in service (.) or not equipped (-)                    | step 22 |

---

## PM FP

### device-related fault minor (continued)

---

- 22** Determine the DEVICE state of the posted FP. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:
- system busy (S)
  - manually busy (M)
  - in-service trouble (I)
  - not equipped (-)
- Note:** In the example of a MAP display in step 18, device 0 on SCSI bus 1 is system busy.

---

| If the DEVICE state | Do      |
|---------------------|---------|
| is S                | step 24 |
| is M                | step 23 |
| is I                | step 24 |
| is - (unequipped)   | step 48 |
| is . (in service)   | step 49 |

---

- 23** Determine from office records or operating company personnel why the device is manual busy.

---

| If                                      | Do      |
|-----------------------------------------|---------|
| you can return the device to service    | step 24 |
| you cannot return the device to service | step 49 |

---

- 24** To query all FP devices, type  
**>QUERYFP DEV ALL ALL**  
and press the Enter key.  
*Example of a MAP response:*

**PM FP****device-related fault minor** (continued)

| Dev  | Name | SCSI | Dev | Type | Quad | Shelf | Slot | Status |
|------|------|------|-----|------|------|-------|------|--------|
| DK00 |      | 0    | 0   | dk   | 0    | 2     | 8    | SysB   |
| CT01 |      | 0    | 1   | ct   | 2    | 2     | 20   | InSv   |
| DK02 |      | 0    | 2   | dk   | 0    | 3     | 8    | InSv   |
| DK03 |      | 0    | 3   | dk   | 2    | 3     | 20   | InSv   |
| DK10 |      | 1    | 0   | dk   | 1    | 2     | 14   | InSv   |
| CT11 |      | 1    | 1   | ct   | 3    | 2     | 26   | InSv   |
| DK12 |      | 1    | 2   | dk   | 1    | 3     | 14   | InSv   |
| DK13 |      | 1    | 3   | dk   | 3    | 3     | 26   | InSv   |

- 25** Determine the type of device that is not in service.

**Note:** In the example of a MAP response in step 24, the system busy device DK00 is a disk drive (device type dk).

| If the device                       | Do      |
|-------------------------------------|---------|
| is a disk drive (device type is dk) | step 26 |
| is a tape drive (device type is ct) | step 40 |

- 26** Determine if the disk drive is a shadow set member.

| If the disk drive               | Do      |
|---------------------------------|---------|
| is a member of a shadow set     | step 27 |
| is not a member of a shadow set | step 40 |

- 27** Determine from office records or operating company personnel the name of the shadow set.

- 28** To access the shadow utility of the FP that contains the disk drive, type

**>SHADOWUT FP fp\_no**

and press the Enter key.

where

**fp\_no**

is the number of the FP that contains the disk drive (0 to 12)

- 29** To stop the shadow set member, type

**>STOPMEMBER ss\_name device\_name**

and press the Enter key.

where

**ss\_name**

is the name of the shadow set (SS00 or SS01)

**device\_name**

is DK (disk drive) followed by two digits

## PM FP device-related fault minor (continued)

---

*Example input:*

**>STOPMEMBER SS00 DK00**

*Example of a MAP response:*

```

*** WARNING: ***
*** If this is the last in-service member then File ***
*** Processing will no longer be available on the ***
*** shadow set: SS00 ***

Do you wish to proceed?
Please confirm ("YES", "Y", "NO", or "N"):
```

- 30** To confirm the response, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

Ok, Shadow Set Member stopped.  
Approximately 1 minute to complete.

- 31** To start the shadow set member, type

**>STARTMEMBER ss\_name device\_name FORCE**

and press the Enter key.

*where*

**ss\_name**

is the name of the shadow set (SS00 or SS01)

**device\_name**

is DK (disk drive) followed by two digits

*Example input:*

**>STARTMEMBER SS00 DK00 FORCE**

*Example of a MAP response:*

**PM FP****device-related fault minor** (continued)

The member will be started with the following parameter settings:

```
Node name : FP1
Shadow set name : SS00
Device name : DK00Transfer length: Optimal
Interval : 0
Synchronization: Default
Force : NO
```

Do you want to continue?  
Please confirm ("YES", "Y", "NO", or "N"):

- 32** To confirm the command, type  
**>YES**  
and press the Enter key.

| If the shadow set member                                               | Do      |
|------------------------------------------------------------------------|---------|
| returned to service                                                    | step 39 |
| did not return to service, and the system generated a card list        | step 33 |
| did not return to service, and the system did not generate a card list | step 48 |

- 33** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.

- 34** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 35** To access the shadow utility of the FP that contains the disk drive, type  
**>SHADOWUT FP fp\_no**  
and press the Enter key.  
*where*

**fp\_no**  
is the number of the FP that contains the disk drive (0 to 12)

- 36** To start the shadow set member, type  
**>STARTMEMBER ss\_name device\_name FORCE**  
and press the Enter key.  
*where*

**PM FP****device-related fault minor** (continued)

---

**ss\_name**

is the name of the shadow set (SS00 or SS01)

**device\_name**

is DK (disk drive) followed by two digits

*Example input:*

**>STARTMEMBER SS00 DK00 FORCE**

*Example of a MAP response:*

The member will be started with the following parameter settings:

Node name : FP1  
Shadow set name: SS00  
Device name : DK00Transfer length: Optimal  
Interval : 0  
Synchronization: Default  
Force : NO

Do you want to continue?

Please confirm ("YES", "Y", "NO", or "N"):

- 37** To confirm the command, type

**>YES**

and press the Enter key.

---

| <b>If the shadow set member</b>                                          | <b>Do</b> |
|--------------------------------------------------------------------------|-----------|
| returned to service                                                      | step 39   |
| did not return to service, and you did not replace all cards on the list | step 38   |
| did not return to service, and you replaced all cards on the list        | step 48   |
| did not return to service, and the system did not generate a card list   | step 48   |

---

- 38** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 34.

- 39** To quit the shadow utility, type

**>QUIT**



**PM FP****device-related fault minor** (continued)

and press the Enter key.

Go to step 47.

- 40** To manually busy the device, type  
**>BSY DEV scsi\_no dev\_no**

and press the Enter key.

where

**scsi\_no**  
 is the number of the SCSI bus (0 or 1)

**dev\_no**  
 is the number of the device (0 to 5)

*Example of a MAP response:*

FP 1 Busy DEV 0 0: Command request has been submitted.  
 FP 1 Busy DEV 0 0: Command passed.

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 41 |
| failed             | step 48 |

- 41** To return the device to service, type  
**>RTS DEV scsi\_no dev\_no**

and press the Enter key.

where

**scsi\_no**  
 is the number of the SCSI bus (0 or 1)

**dev\_no**  
 is the number of the device (0 to 5)

| If the RTS command                                  | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 47 |
| failed, and the system generated a card list        | step 42 |
| failed, and the system did not generate a card list | step 48 |

- 42** Record the location, PEC, and PEC suffix of the first card on the card list.

- 43** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

## PM FP

### device-related fault minor (continued)

- 44** To access the Devices level of the FP that has a device-related fault, type  
**>MAPCI;MTC;PM;POST FP fp\_no;DEVICES**  
 and press the Enter key.

where

**fp\_no**  
 is the number of the file processor (0 to 12)

Example of a MAP response:

```

FP 1: FP1_R256 Plane Devices
ISTb . 1SysB

 CTRL0 CTRL1 DEVICE
DABM . . 0 1 2 3 4 5
SCSI 0 . (EN) . (DIS) -
SCSI 1 . (EN) . (DIS) S -

```

- 45** To return the device to service, type  
**>RTS DEV scsi\_no dev\_no**  
 and press the Enter key.

where

**scsi\_no**  
 is the number of the SCSI bus (0 or 1)

**dev\_no**  
 is the number of the device (0 to 5)

| If the RTS command                                    | Do      |
|-------------------------------------------------------|---------|
| passed                                                | step 47 |
| failed, and you did not replace all cards on the list | step 46 |
| failed, and you replaced all cards on the list        | step 48 |
| failed, and the system did not generate a card list   | step 48 |

- 46** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.  
 Go to step 43.

---

**PM FP**  
**device-related fault minor (end)**

---

- 47** Determine the Devices state of the posted FP.

**Note:** A dot . under the Devices header indicates that the FP devices are in service. Any other symbol indicates a fault.

---

| <b>If the Devices state</b> | <b>Do</b> |
|-----------------------------|-----------|
| is . (in service)           | step 49   |
| is other than listed here   | step 48   |

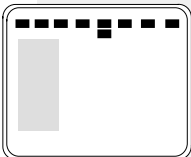
---

- 48** For additional help, contact the next level of support.

- 49** The procedure is complete.

PM FP  
JInact minor

Alarm display

|                                                                                   |    |    |     |     |           |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-----------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | PM<br>1FP | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | .         | .   | .   | .    | .   | .    |

Indication

At the MTC level of the MAP, FP preceded by a number appears under the PM header of the alarm banner. FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP displays JInact.

Meaning

The FP runs in sync with the jammed CPU that is inactive. A jam on an FP is a result of manual action. Also the loss and start again of power for the inactive FP results in a jam on an FP.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

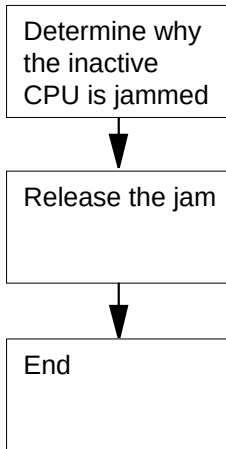
The alarm does not affect service. While the inactive CPU jams, neither the system nor the user can initiate SWACTs.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP**  
**Jlnact minor** (continued)**Summary of clearing a PM FP Jlnact minor alarm**

This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

## PM FP

### Jlnact minor (end)

---

#### Clearing a PM FP Jlnact minor alarm

##### *At the MAP terminal*

- 1 Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directed you to this procedure.
- 2 Determine from office records or operating company personnel if the jam is the result of manual action.

| If the jam                          | Do     |
|-------------------------------------|--------|
| was the result of manual action     | step 3 |
| was not the result of manual action | step 4 |

- 3 Consult office records or operating company personnel. Determine the reason that the FP jammed.

| If you                 | Do     |
|------------------------|--------|
| can release the jam    | step 4 |
| cannot release the jam | step 6 |

##### *At the MAP*

- 4 To release the jam on the inactive CPU, type  
**>MATEJAM RELEASE**  
and press the Enter key.

| If the jam      | Do     |
|-----------------|--------|
| released        | step 6 |
| did not release | step 5 |

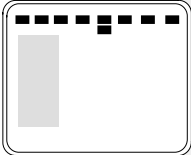
- 5 For additional help, contact the next level of support.
- 6 The procedure is complete.

---

**PM FP**  
**LowMem minor**

---

**Alarm display**

|                                                                                   |    |    |     |     |            |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>  | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1FP</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP shows LowMem.

**Meaning**

The FP runs low on available memory.

The number under the PM header in the alarm banner indicates the number of affected FPs.

**Result**

The alarm does not affect service. If a process requires the use of additional memory for any reason, a restart can occur on the FP. The restart disrupts applications that use the FP.

**Common procedures**

There are no common procedures.

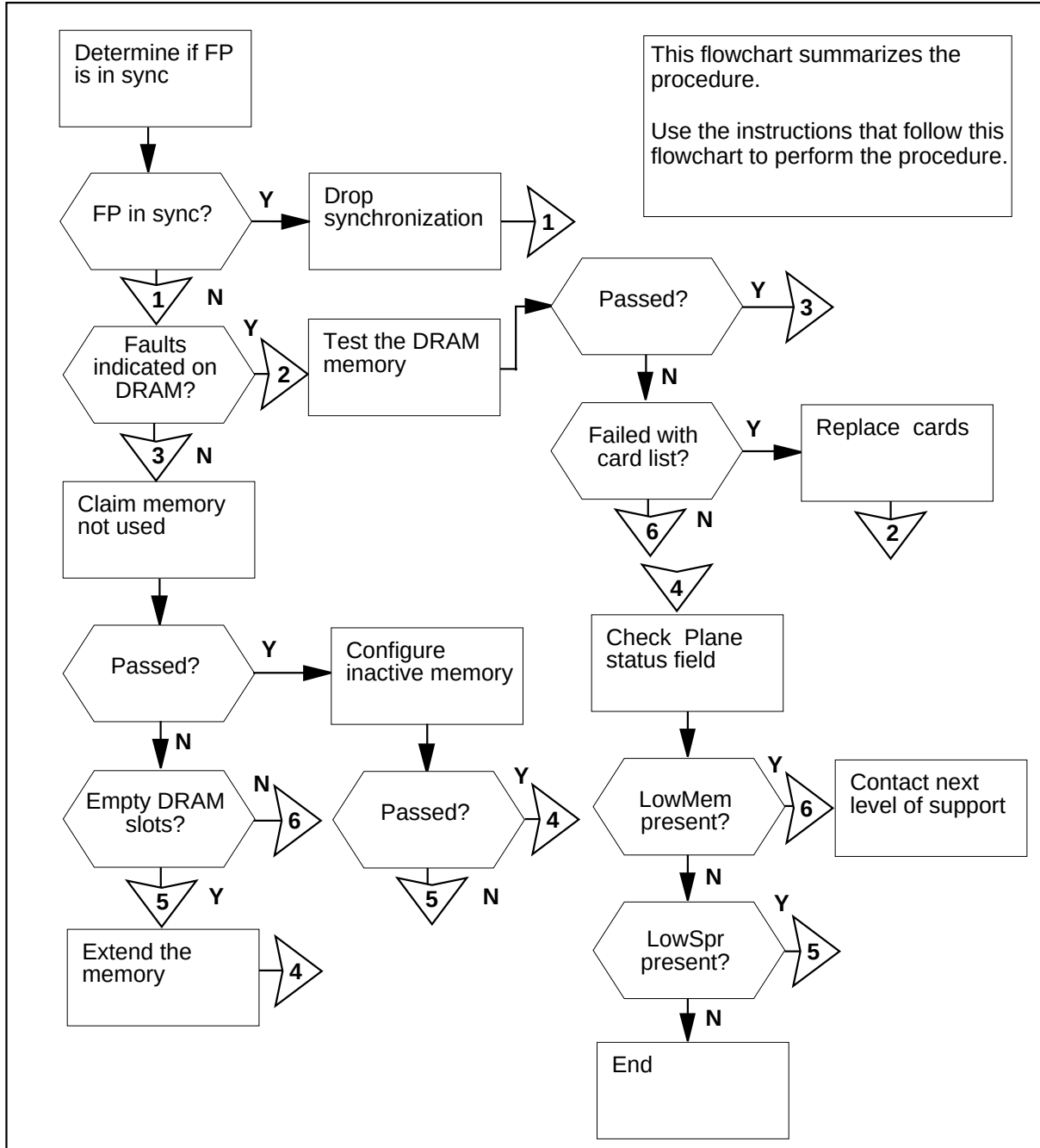
**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP

### LowMem minor (continued)

#### Summary of clearing a PM FP LowMem minor alarm





## PM FP

### LowMem minor (continued)

#### Clearing a PM FP LowMem minor alarm



#### CAUTION

Proceed only if the procedure How to clear a PM FP minor alarm in this document directed you to this procedure.

#### At the MAP terminal

- 1 To access the Plane level of the MAP display of the FP that has in service trouble, type

**>PLANE**

and press the Enter key.

*Example of a MAP display:*

| Sync    | CPU   | Jam | DRAM | Port | MsgCh | PLink |
|---------|-------|-----|------|------|-------|-------|
| No      | state | act | 0123 | Card | 0 1   | 0 1   |
| Plane 0 | .     | A   | -... | .    | .     | .     |
| Plane 1 | .     | I   | No   | -... | .     | .     |

- 2 Determine if the central processing unit (CPU) jammed.

**Note:** The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

| If the CPU  | Do     |
|-------------|--------|
| jammed      | step 4 |
| did not jam | step 3 |

- 3 To jam the inactive CPU, type

**>MATEJAM SET**

and press the Enter key.

- 4 Determine if the FP is in sync.

**Note:** The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

| If the FP      | Do     |
|----------------|--------|
| is in sync     | step 5 |
| is not in sync | step 7 |

PM FP  
LowMem minor (continued)

- 5 To drop synchronization, type  
**>DPSYNC**

and press the Enter key.

*Example of a MAP response:*

If you intend to jam the inactive CPU, please do so before dropping synchronization.  
Please confirm ("YES", "Y", "NO", or "N"):

- 6 To confirm the command, type  
**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 3 Drop synchronization: Request has been submitted.  
FP 3 Drop synchronization: Command completed.  
Now running in simplex mode with CPU 0 active.

- 7 Determine the state of the FP DRAMs.

*Example of a MAP display:*

| Sync |         | CPU   | Jam | DRAM | Port | MsgCh | PLink |
|------|---------|-------|-----|------|------|-------|-------|
| No   |         | state | act | 0123 | Card | 0 1   | 0 1   |
|      | Plane 0 | .     | A   | -F.. | .    | .     | .     |
|      | Plane 1 | .     | I   | No   | -... | .     | .     |

**Note:** In the preceding example of a MAP display, all DRAMs are <> (in service) except DRAM card 1 on plane 1. The DRAM card 1 on plane 1 has faults.

| If                                         | Do      |
|--------------------------------------------|---------|
| a DRAM field contains an F in either plane | step 8  |
| DRAM fields do not contain an F            | step 15 |

- 8 To perform a memory test on the slot of the DRAM that has faults, type  
**>TST MEM dram\_no**

and press the Enter key.

*where*

## PM FP LowMem minor (continued)

**dram\_no**

is the number of the DRAM (0 to 3) slot with the fault

|         | If the TST command                                                                                                                                                                                                                                                                                                                                                                                    | Do      |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|------|-------|-------|------|-------|-------|----|-----------|--|------|------|-----|-----|---------|---|---|------|---|---|---|---------|---|---|----|------|---|---|
|         | passed                                                                                                                                                                                                                                                                                                                                                                                                | step 15 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | failed, and the system generated a card list                                                                                                                                                                                                                                                                                                                                                          | step 9  |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | failed, and the system did not generate a card list                                                                                                                                                                                                                                                                                                                                                   | step 23 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| 9       | Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.                                                                                                                                                                                                                                                                                               |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| 10      | Determine if the system generated fault indicators (alarms or logs) for the card.                                                                                                                                                                                                                                                                                                                     |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | If the system                                                                                                                                                                                                                                                                                                                                                                                         | Do      |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | generated alarms or logs for the card                                                                                                                                                                                                                                                                                                                                                                 | step 11 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | did not generate alarms or logs for the card                                                                                                                                                                                                                                                                                                                                                          | step 23 |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| 11      | To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                                                                                                                                                               |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| 12      | To access the Plane level of the FP that has in service trouble, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no;PLANE</b><br>and press the Enter key.<br><i>where</i><br><b>fp_no</b><br>is the number of the FP (0 to 12)<br><i>Example of a MAP:</i>                                                                                                                                                     |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
|         | <table><tr><td>Sync</td><td>CPU</td><td>Jam</td><td>DRAM</td><td>Port</td><td>MsgCh</td><td>PLink</td></tr><tr><td>No</td><td>state act</td><td></td><td>0123</td><td>Card</td><td>0 1</td><td>0 1</td></tr><tr><td>Plane 0</td><td>.</td><td>A</td><td>-...</td><td>.</td><td>.</td><td>.</td></tr><tr><td>Plane 1</td><td>.</td><td>I</td><td>No</td><td>-...</td><td>.</td><td>.</td></tr></table> |         | Sync | CPU  | Jam   | DRAM  | Port | MsgCh | PLink | No | state act |  | 0123 | Card | 0 1 | 0 1 | Plane 0 | . | A | -... | . | . | . | Plane 1 | . | I | No | -... | . | . |
| Sync    | CPU                                                                                                                                                                                                                                                                                                                                                                                                   | Jam     | DRAM | Port | MsgCh | PLink |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| No      | state act                                                                                                                                                                                                                                                                                                                                                                                             |         | 0123 | Card | 0 1   | 0 1   |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| Plane 0 | .                                                                                                                                                                                                                                                                                                                                                                                                     | A       | -... | .    | .     | .     |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| Plane 1 | .                                                                                                                                                                                                                                                                                                                                                                                                     | I       | No   | -... | .     | .     |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |
| 13      | To perform a memory test on the slot of the DRAM that has faults, type<br><b>&gt;TST MEM dram_no</b><br>and press the Enter key.<br><i>where</i>                                                                                                                                                                                                                                                      |         |      |      |       |       |      |       |       |    |           |  |      |      |     |     |         |   |   |      |   |   |   |         |   |   |    |      |   |   |

**PM FP****LowMem minor** (continued)

---

**dram\_no**

is the number of the DRAM slot (0 to 3) with the fault

---

**If the TST command****Do**

---

passed

step 15

failed, and you did not replace  
all cards on the list

step 14

failed, and you replaced all cards  
on the list

step 23

failed, and the system did not  
generate a card liststep 23

---

- 14** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 10.

- 15** To claim the memory that was not in use on the node, type

**>CLAIM**

and press the Enter key.

- 16** To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 0 Memory Reclaim: Request has been submitted.

FP 0 Memory Reclaim: Command failed. All allocated memory  
modules are in use.

---

**If the CLAIM command****Do**

---

passed

step 17

failed

step 23

---

- 17** To configure the inactive CPU memory on the node, type

**>CONFIG**

and press the Enter key.

*Example of a MAP response:*

## PM FP

### LowMem minor (continued)

**WARNING**

Memory configuration maps the inactive plane DRAM memory into the same Data Store and Program Store ranges currently existing on the active plane. This action could destroy the load running on the inactive plane. It should only be performed following a DRAM memory test involving a memory extension, reduction, or replacement.

Please confirm ("YES", "Y", "NO", or "N"):

- 18** To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 0 Configure: Request has been submitted.

FP 0 Configure: Command completed. Memory configuration completed.

| If the CONFIG command | Do      |
|-----------------------|---------|
| passed                | step 19 |
| failed                | step 23 |

- 19** To synchronize the node, type

**>SYNC**

and press the Enter key.

| If the SYNC command | Do      |
|---------------------|---------|
| passed              | step 20 |
| failed              | step 23 |

- 20** To release the jam on the inactive CPU, type

**>MATEJAM RELEASE**

and press the Enter key.

- 21** Determine the Plane state of the posted FP.

**Note:** The symbol <> under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

| If the Plane state | Do      |
|--------------------|---------|
| is <> (in service) | step 24 |

## PM FP

### LowMem minor (end)

---

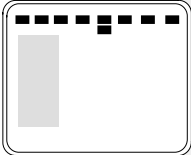
|    | If the Plane state                                                          | Do      |
|----|-----------------------------------------------------------------------------|---------|
|    | isLowMem                                                                    | step 23 |
|    | is other than listed here                                                   | step 22 |
| 22 | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document. |         |
| 23 | For additional help, contact the next level of support.                     |         |
| 24 | The procedure is complete.                                                  |         |

---

**PM FP**  
**MemCor minor**

---

**Alarm display**

|                                                                                   |    |    |     |     |            |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>  | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1FP</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a file processor (FP) minor alarm. The Plane state field of the posted FP displays MemCor.

**Meaning**

A memory fault occurred on an FP. Correct the memory fault.

The number under the PM header in the MAP banner indicates the number of affected FPs.

**Result**

There is no result.

**Common procedures**

There are no common procedures.

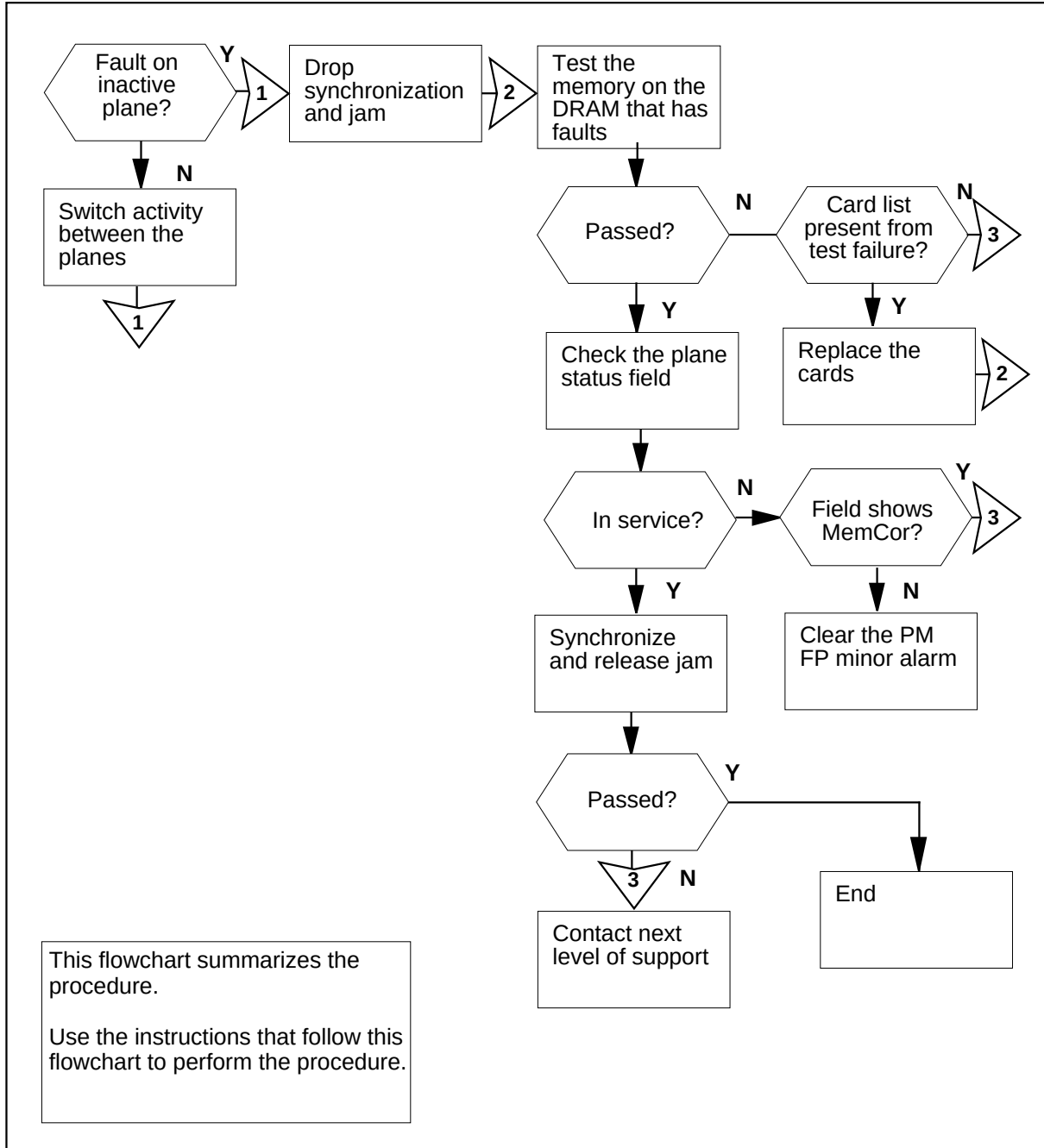
**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP

### MemCor minor (continued)

#### Summary of clearing a PM FP MemCor minor alarm





## PM FP MemCor minor (continued)

### Clearing a PM FP MemCor minor alarm

#### At the MAP terminal

1

#### ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display of the posted FP, type

**>PLANE**

and press the Enter key.

*Example of a MAP display:*

|         |   |           |     |        |      |       |       |
|---------|---|-----------|-----|--------|------|-------|-------|
| Sync    |   | CPU       | Jam | DRAM   | Port | MsgCh | PLink |
| No      |   | state act |     | 0123   | Card | 0 1   | 0 1   |
| Plane 0 | F | I         |     | -.F.   | .    | .     | .     |
| Plane 1 | . | A         | Yes | -. . . | .    | .     | .     |

2 Determine if the fault is on the active or inactive plane. An F in the CPU state field indicates a fault.

**Note:** The letter A in the CPU act field indicates the active plane. An I in the CPU act field indicates the inactive plane.

| If the fault             | Do     |
|--------------------------|--------|
| is on the active plane   | step 3 |
| is on the inactive plane | step 6 |

3 Determine if the inactive CPU jammed.

**Note:** The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

| If the inactive CPU | Do     |
|---------------------|--------|
| jammed              | step 4 |
| did not jam         | step 5 |

4 To release the jam on the inactive CPU, type

**>MATEJAM RELEASE**

and press the Enter key.

**PM FP****MemCor minor** (continued)

---

*Example of a MAP response:*

FP 3 Jam Mate: Request has been submitted.  
FP 3 Jam Mate: Command Completed.  
The inactive CPU is not jammed.

- 5 To switch CPU activity on the FP, type

**>SWACT**

and press the Enter key.

---

| If the SWACT command | Do      |
|----------------------|---------|
| passed               | step 6  |
| failed               | step 19 |

---

- 6 To jam the inactive CPU, type

**>MATEJAM SET**

and press the Enter key.

*Example of a MAP response:*

FP 3 Jam Mate: Request has been submitted.  
FP 3 Jam Mate Command completed.  
The inactive CPU is jammed

- 7 To drop the synchronization on the FP, type

**>DPSYNC**

and press the Enter key.

*Example of a MAP response:*

If you intend to jam the inactive CPU, please do so  
before dropping synchronization.  
Please confirm ("YES", "Y", "NO", or "N"):

- 8 To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 3 Drop synchronization: Request has been submitted.  
FP 3 Drop synchronization: Command completed.

- 9 To test the DRAM card that has the fault, type

**>TST MEM dram\_no**

and press the Enter key.

## PM FP MemCor minor (continued)

where

**dram\_no**  
is the number of the DRAM (0 to 3) slot that has the fault

|           | If the TST command                                                                                                                      | Do      |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | passed                                                                                                                                  | step 15 |
|           | failed, and the system generated a card list                                                                                            | step 10 |
|           | failed, and the system did not generate a card list                                                                                     | step 19 |
| <b>10</b> | Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.                                 |         |
| <b>11</b> | To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |         |
| <b>12</b> | To access the plane level of the FP that has faults, type<br><b>&gt;MAPCI;MTC;PM;POST FP fp_no;PLANE</b><br>and press the Enter key.    |         |

where

**fp\_no**  
is the file processor number (0 to 12)

Example of a MAP display:

|      |         |           |     |        |      |       |       |
|------|---------|-----------|-----|--------|------|-------|-------|
| Sync |         | CPU       | Jam | DRAM   | Port | MsgCh | PLink |
| No   |         | state act |     | 0123   | Card | 0 1   | 0 1   |
|      | Plane 0 | F I       |     | -.F.   | .    | .     | .     |
|      | Plane 1 | . A       | Yes | -. . . | .    | .     | .     |

- 13** To test the DRAM card that has faults, type  
**>TST MEM dram\_no**  
and press the Enter key.

where

**dram\_no**  
is the number of the DRAM (0 to 3) slot that has faults

|  | If the TST command                                        | Do      |
|--|-----------------------------------------------------------|---------|
|  | passed                                                    | step 15 |
|  | failed, and you did not replace all the cards on the list | step 14 |

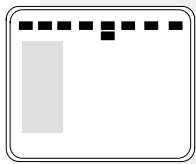
**PM FP****MemCor minor (end)**

|           | <b>If the TST command</b>                                                                                                                                                                                                                                             | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and you replaced all the cards on the list                                                                                                                                                                                                                    | step 19   |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                   | step 19   |
| <b>14</b> | Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 11.                                                                                                                                                                            |           |
| <b>15</b> | To release the jam on the inactive CPU, type<br><b>&gt;MATEJAM RELEASE</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>FP 3 Jam Mate: Request has been submitted.<br>FP 3 Jam Mate: Command Completed.<br>The inactive CPU is not jammed. |           |
| <b>16</b> | To synchronize the FP, type<br><b>&gt;SYNC</b><br>and press the Enter key.                                                                                                                                                                                            |           |
|           | <b>If the SYNC command</b>                                                                                                                                                                                                                                            | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                                | step 17   |
|           | failed                                                                                                                                                                                                                                                                | step 19   |
| <b>17</b> | Determine the plane state of the posted FP.<br><b>Note:</b> The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.                                                                                      |           |
|           | <b>If the plane state</b>                                                                                                                                                                                                                                             | <b>Do</b> |
|           | is . (in service)                                                                                                                                                                                                                                                     | step 20   |
|           | is MemCor                                                                                                                                                                                                                                                             | step 19   |
|           | is other than listed here                                                                                                                                                                                                                                             | step 18   |
| <b>18</b> | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.                                                                                                                                                                                           |           |
| <b>19</b> | For additional help, contact the next level of support.                                                                                                                                                                                                               |           |
| <b>20</b> | The procedure is complete.                                                                                                                                                                                                                                            |           |

---

**PM FP**  
**MemFlt minor**

---

**Alarm display**

| CM | MS | IOD | Net | <b>PM</b>  | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1FP</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The plane state field of the posted FP displays MemFlt.

**Meaning**

A memory fault that cannot be corrected occurred on an FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

**Result**

There is no result.

**Common procedures**

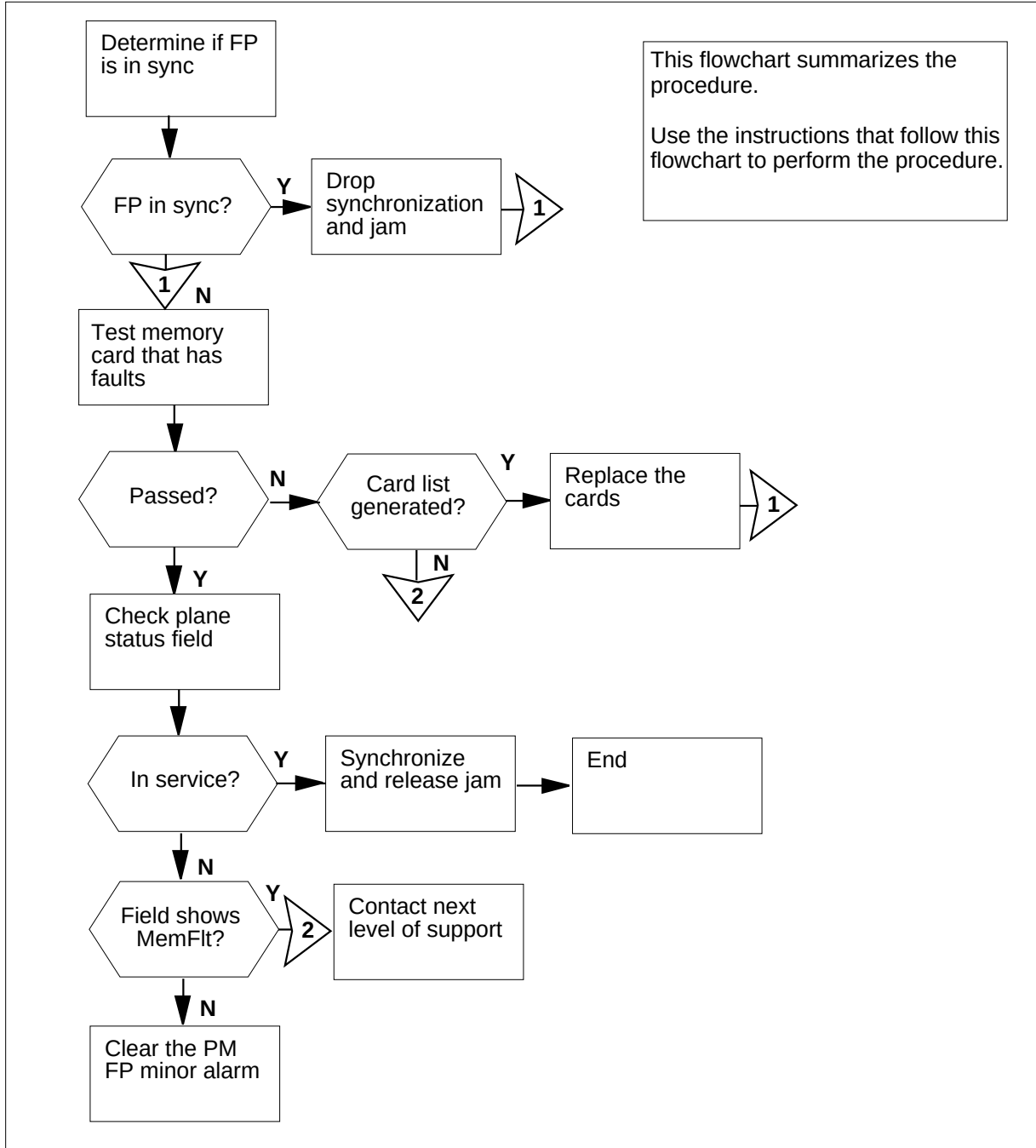
There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP MemFIt minor (continued)

### Summary of clearing a PM FP MemFIt minor alarm



## PM FP MemFlt minor (continued)

### Clearing a PM FP MemFlt minor alarm

#### At the MAP terminal

1

#### ATTENTION

Proceed only if the procedure *How to clear a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display of the posted FP, type

**>PLANE**

and press the Enter key.

*Example of a MAP display:*

| Sync |         | CPU   | Jam | DRAM | Port | MsgCh | PLink |
|------|---------|-------|-----|------|------|-------|-------|
| No   |         | state | act | 0123 | Card | 0 1   | 0 1   |
|      | Plane 0 | .     | A   | -... | .    | .     | .     |
|      | Plane 1 | F     | I   | -.F. | .    | .     | .     |

2 Determine if the FP is in sync.

**Note:** The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

| If the FP      | Do     |
|----------------|--------|
| is in sync     | step 3 |
| is not in sync | step 6 |

3 To jam the inactive CPU, type

**>MATEJAM SET**

and press the Enter key.

*Example of a MAP response:*

FP 3 Jam Mate: Request has been submitted.  
 FP 3 Jam Mate Command completed.  
 The inactive CPU is jammed

4 To drop the synchronization on the node, type

**>DPSYNC**

and press the Enter key.

*Example of a MAP response:*

## PM FP

### MemFIt minor (continued)

If you intend to jam the inactive CPU, please do so before dropping synchronization.  
Please confirm ("YES", "Y", "NO", or "N"):

- 5 To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP response:*

FP 3 Drop synchronization: Request has been submitted.  
FP 3 Drop synchronization: Command completed.

- 6 The letter F in the DRAM state field on the plane indicates a fault. To test the DRAM card that has faults, type

**>TST MEM dram\_no**

and press the Enter key.

*where*

**dram\_no**

is the number of the DRAM slot (0 to 3) that has faults

*Example of a MAP display:*

|      |         |           |     |      |      |       |       |
|------|---------|-----------|-----|------|------|-------|-------|
| Sync |         | CPU       | Jam | DRAM | Port | MsgCh | PLink |
| No   |         | state act |     | 0123 | Card | 0 1   | 0 1   |
|      | Plane 0 | . A       |     | -... | .    | .     | .     |
|      | Plane 1 | F I       | No  | -.F. | .    | .     | .     |

#### If the TST command

#### Do

passed step 11

failed, and the system generated a card list step 7

failed, and the system did not generate a card list step 15

- 7 Record the location, product equipment code (PEC), and PEC suffix of the first card on the card list.
- 8 To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 9 The letter F in the DRAM status field in the inactive plane indicates a fault. To test the DRAM card that has faults, type
- >TST MEM dram\_no**
- and press the Enter key.



## PM FP

### MemFlt minor (continued)

where

**dram\_no**  
is the number of the DRAM slot (0 to 3) that has faults

|           | <b>If the TST command</b>                                                                                                                                                                                                                                          | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                             | step 11   |
|           | failed, and you did not replace all the cards on the list                                                                                                                                                                                                          | step 10   |
|           | failed, and you replaced all the cards on the list                                                                                                                                                                                                                 | step 15   |
|           | failed, and the system generated a card list                                                                                                                                                                                                                       | step 15   |
| <b>10</b> | Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 8.                                                                                                                                                                          |           |
| <b>11</b> | To synchronize the FP, type<br><b>&gt;SYNC</b><br>and press the Enter key.                                                                                                                                                                                         |           |
|           | <b>If the SYNC command</b>                                                                                                                                                                                                                                         | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                             | step 12   |
|           | failed                                                                                                                                                                                                                                                             | step 15   |
| <b>12</b> | To release the jam on the inactive CPU, type<br><b>&gt;MATEJAM RELEASE</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>FP 3 Jam Mate: Request has been submitted.<br>FP 3 Jam Mate: Command completed, The inactive CPU is not jammed. |           |
| <b>13</b> | Determine the plane state of the posted FP.<br><br><b>Note:</b> The symbol . under the plane header indicates that the FP planes are in service. Any other symbol indicates a fault.                                                                               |           |
|           | <b>If the state</b>                                                                                                                                                                                                                                                | <b>Do</b> |
|           | is . (in service)                                                                                                                                                                                                                                                  | step 16   |
|           | is MemFlt                                                                                                                                                                                                                                                          | step 15   |

**PM FP**

**MemFlt minor** (end)

---

|           | <b>If the state</b>                                                         | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------|-----------|
|           | is other than listed here                                                   | step 14   |
| <b>14</b> | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document. |           |
| <b>15</b> | For additional help, contact the next level of support.                     |           |
| <b>16</b> | The procedure is complete.                                                  |           |

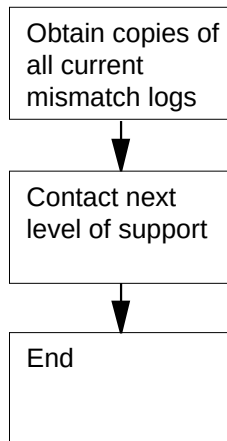
DMS-100 Family NA100 Alarm Clearing and Perform. Monitoring Proc. Volume 3 of 4 LEC0015 and up

## PM FP

### MMThrs minor (continued)

---

#### Summary of Clearing a PM FP MMThrs minor alarm



This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

**PM FP**  
**MMThrs minor (end)**

---

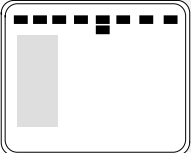
**Clearing a PM FP MMThrs minor alarm**

***At your current location***

- 1** Obtain copies of all current occurrences of the following logs:
  - AP317
  - AP318
  - FP354
- 2** For additional help, contact the next level of support.
- 3** The procedure is complete.

**PM FP**  
**NoOvr minor**

**Alarm display**

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   |                         | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays NoOvr.

**Meaning**

The FP operates in sync with the handshake override turned off. The system or manual action can decommission the handshake override.

The number under the PM header in the MAP banner indicates the number of FPs affected.

**Result**

A loss of service does not occur. The processing speed of the FP decreases by 3% to 5%.

**Common procedures**

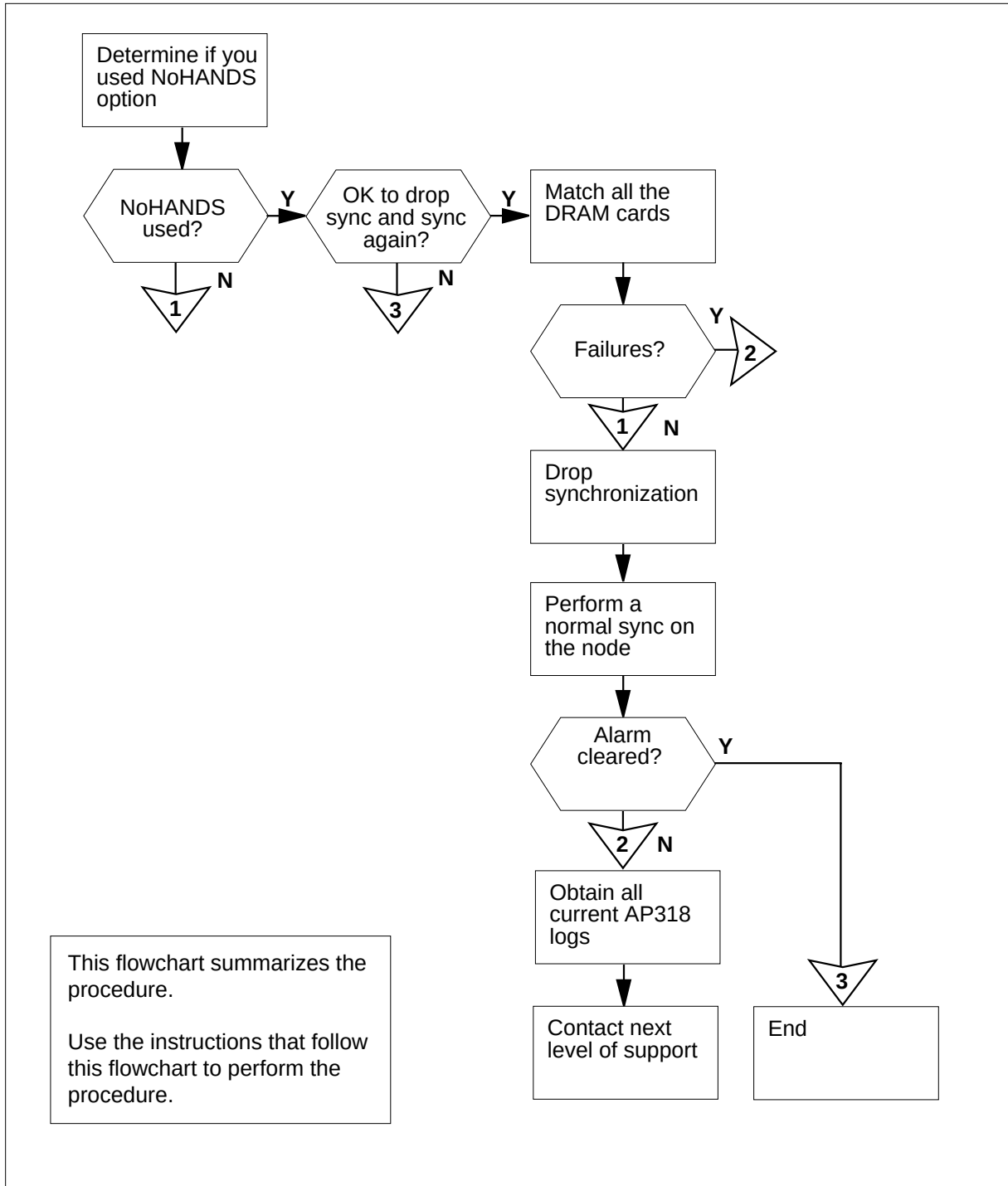
There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP NoOvr minor (continued)

### Summary of clearing a PM FP NoOvr minor alarm



## PM FP NoOvr minor (continued)

### Clearing a PM FP NoOvr minor alarm

#### At the MAP terminal

1

#### ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display for the in-service trouble FP, type

**>PLANE**

and press the Enter key.

*Example of a MAP display:*

|      |         |       |     |      |      |       |       |
|------|---------|-------|-----|------|------|-------|-------|
| Sync |         | CPU   | Jam | DRAM | Port | MsgCh | PLink |
| Yes  |         | state | act | 0123 | Card | 0 1   | 0 1   |
|      | Plane 0 | .     | A   | -... | .    | .     | .     |
|      | Plane 1 | F     | I   | No   | -... | .     | .     |

2 Determine from office records or operating company personnel if the user used the NoHANDS option to put the FP in sync.

| If you                                                                        | Do      |
|-------------------------------------------------------------------------------|---------|
| entered the last SYNC command with the NoHANDS option                         | step 3  |
| did not enter the last SYNC command with the NoHANDS option                   | step 4  |
| cannot determine if you entered the last SYNC command with the NoHANDS option | step 14 |

3 Determine if you have permission to match the memories of the CPUs.

| If you                                       | Do      |
|----------------------------------------------|---------|
| have permission to match CPU memories        | step 4  |
| do not have permission to match CPU memories | step 15 |



---

**PM FP**  
**NoOvr minor** (continued)

---

- 4 To match the memories of the CPUs, type

**>MATCH dram\_no**

and press the Enter key.

where

**dram\_no**

is a number that represents a provisioned DRAM card.

Any value other than a dash (-) in the DRAM

status field (0 to 3) indicates a provisioned DRAM card.

| If the MATCH command | Do      |
|----------------------|---------|
| passed               | step 5  |
| failed               | step 13 |

- 5 Determine from the Plane level MAP display if more DRAM card slots to match are present.

| If more slots   | Do     |
|-----------------|--------|
| are present     | step 4 |
| are not present | step 6 |

- 6 To jam the inactive CPU, type

**>MATEJAM SET**

and press the Enter key.

*Example of a MAP response:*

FP 3 Jam Mate: Request has been submitted.

FP 3 Jam Mate: Command completed.

The inactive CPU is jammed

- 7 To drop the synchronization on the FP, type

**>DPSYNC**

and press the Enter key.

*Example of a MAP response:*

If you intend to jam the inactive CPU, please do so before dropping synchronization.

Please confirm ("YES", "Y", "NO", or "N"):

- 8 To confirm the command, type

**>YES**

**PM FP****NoOvr minor** (continued)

and press the Enter key.

*Example of a MAP response:*

FP 3 Drop synchronization: Request has been submitted.  
 FP 3 Drop synchronization: Command completed.  
 Now running in simplex mode with CPU 0 active.

- 9** To synchronize the FP, type

**>SYNC**

and press the Enter key.

*Example of a MAP response:*

FP 3 Synchronization: Request has been submitted.  
 FP 3 Synchronization: Command completed. The PM is now running in SYNC.

| If the SYNC command | Do      |
|---------------------|---------|
| passed              | step 10 |
| failed              | step 11 |

- 10** To release the jam on the inactive CPU, type

**>MATEJAM RELEASE**

and press the Enter key.

*Example of a MAP response:*

FP 3 Jam Mate: Request has been submitted.  
 FP 3 Jam Mate: Command completed, The inactive CPU is not jammed.

- 11** Determine the Plane state of the posted FP.

*Example of a MAP display:*

```
FP 3: FP3_256 Plane Devices
InSv . .
```

**Note:** The symbol . under the plane header indicates that the FP surfaces are in service. Any other symbol indicates a fault.

| If the plane state        | Do      |
|---------------------------|---------|
| is . (in service)         | step 15 |
| is NoOvr                  | step 13 |
| is other than listed here | step 12 |

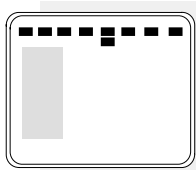
**PM FP**  
**NoOvr minor (end)**

---

- 12** Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 13** Obtain copies of all current AP318 logs.
- 14** For additional help, contact the next level of support.
- 15** The procedure is complete.

**PM FP**  
**NoSync minor**

**Alarm display**

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   |                         | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays NoSync.

**Meaning**

The two planes of the FP did not synchronize.

The number under the PM header in the MAP banner indicates the number of FPs affected.

**Result**

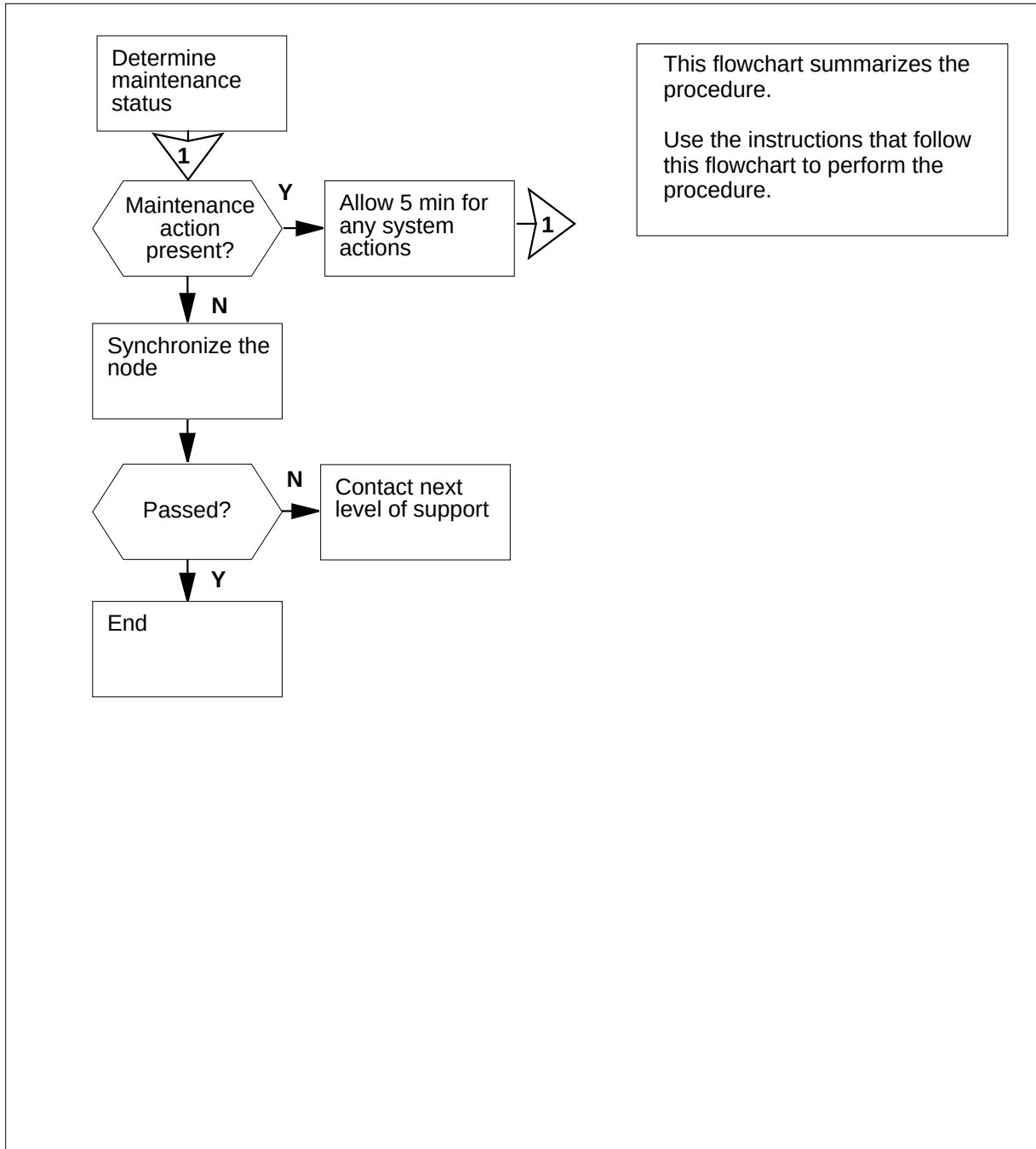
The active plane runs in simplex mode. The performance of applications that use this FP degrade while the FP is out of sync. The performance also degrades if synchronization occurs.

**Common procedures**

There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP**  
**NoSync minor** (continued)**Summary of clearing a PM FP NoSync minor alarm**

PM FP  
NoSync minor (continued)

Clearing a PM FP NoSync minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

Determine if the /Mtce flag is present.

**Note:** Immediately to the right of the FP state in the MAP display is a maintenance status field. The field contains the /Mtce flag if a maintenance action occurs on the FP.

Example of a MAP display:

|       |         |       |         |
|-------|---------|-------|---------|
| FP 0: | FP0_256 | Plane | Devices |
| ISTb  | /Mtce   | .     | .       |

| If the /Mtce flag | Do     |
|-------------------|--------|
| is present        | step 3 |
| is not present    | step 4 |

2 Wait 5 min to 10 min for the system to complete recovery attempts.

| If the /Mtce flag | Do      |
|-------------------|---------|
| is present        | step 16 |
| is not present    | step 4  |

3 To access the plane level of the MAP display of the posted FP, type  
>PLANE  
and press the Enter key.

Example of a MAP display:

|      |         |           |     |         |      |       |       |
|------|---------|-----------|-----|---------|------|-------|-------|
| Sync |         | CPU       | Jam | DRAM    | Port | MsgCh | PLink |
| No   |         | state act |     | 0123    | Card | 0 1   | 0 1   |
|      | Plane 0 | .         | A   | -...    | .    | .     | .     |
|      | Plane 1 | N         | I   | No -NNN | .    | .     | .     |

**PM FP**  
**NoSync minor** (continued)

- |                                                     |                                                                                                                                                                                                                                                                                                                                                                                  |                              |           |                                |         |                                              |         |                                                     |         |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------|--------------------------------|---------|----------------------------------------------|---------|-----------------------------------------------------|---------|
| 4                                                   | Determine if the CPUs are in sync.<br><br><b>Note:</b> The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.                                                                                                                                                                                                    |                              |           |                                |         |                                              |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If the CPUs</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>are in sync</td> <td>step 12</td> </tr> <tr> <td>are not in sync</td> <td>step 5</td> </tr> </table>                                                                                                                          | <b>If the CPUs</b>           | <b>Do</b> | are in sync                    | step 12 | are not in sync                              | step 5  |                                                     |         |
| <b>If the CPUs</b>                                  | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                        |                              |           |                                |         |                                              |         |                                                     |         |
| are in sync                                         | step 12                                                                                                                                                                                                                                                                                                                                                                          |                              |           |                                |         |                                              |         |                                                     |         |
| are not in sync                                     | step 5                                                                                                                                                                                                                                                                                                                                                                           |                              |           |                                |         |                                              |         |                                                     |         |
| 5                                                   | Determine from office records or other operating company personnel if synchronization on the FP was dropped manually.                                                                                                                                                                                                                                                            |                              |           |                                |         |                                              |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If FP synchronization</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>was dropped manually</td> <td>step 6</td> </tr> <tr> <td>was not dropped manually</td> <td>step 7</td> </tr> </table>                                                                                               | <b>If FP synchronization</b> | <b>Do</b> | was dropped manually           | step 6  | was not dropped manually                     | step 7  |                                                     |         |
| <b>If FP synchronization</b>                        | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                        |                              |           |                                |         |                                              |         |                                                     |         |
| was dropped manually                                | step 6                                                                                                                                                                                                                                                                                                                                                                           |                              |           |                                |         |                                              |         |                                                     |         |
| was not dropped manually                            | step 7                                                                                                                                                                                                                                                                                                                                                                           |                              |           |                                |         |                                              |         |                                                     |         |
| 6                                                   | Determine from office records or other operating company personnel why synchronization was dropped.                                                                                                                                                                                                                                                                              |                              |           |                                |         |                                              |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If you</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>have permission to sync the FP</td> <td>step 7</td> </tr> <tr> <td>do not have permission to sync the FP</td> <td>step 17</td> </tr> </table>                                                                                      | <b>If you</b>                | <b>Do</b> | have permission to sync the FP | step 7  | do not have permission to sync the FP        | step 17 |                                                     |         |
| <b>If you</b>                                       | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                        |                              |           |                                |         |                                              |         |                                                     |         |
| have permission to sync the FP                      | step 7                                                                                                                                                                                                                                                                                                                                                                           |                              |           |                                |         |                                              |         |                                                     |         |
| do not have permission to sync the FP               | step 17                                                                                                                                                                                                                                                                                                                                                                          |                              |           |                                |         |                                              |         |                                                     |         |
| 7                                                   | To synchronize the FP, type<br><b>&gt;SYNC</b><br>and press the Enter key.                                                                                                                                                                                                                                                                                                       |                              |           |                                |         |                                              |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If the SYNC command</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>passed</td> <td>step 12</td> </tr> <tr> <td>failed, and the system generated a card list</td> <td>step 8</td> </tr> <tr> <td>failed, and the system did not generate a card list</td> <td>step 16</td> </tr> </table> | <b>If the SYNC command</b>   | <b>Do</b> | passed                         | step 12 | failed, and the system generated a card list | step 8  | failed, and the system did not generate a card list | step 16 |
| <b>If the SYNC command</b>                          | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                        |                              |           |                                |         |                                              |         |                                                     |         |
| passed                                              | step 12                                                                                                                                                                                                                                                                                                                                                                          |                              |           |                                |         |                                              |         |                                                     |         |
| failed, and the system generated a card list        | step 8                                                                                                                                                                                                                                                                                                                                                                           |                              |           |                                |         |                                              |         |                                                     |         |
| failed, and the system did not generate a card list | step 16                                                                                                                                                                                                                                                                                                                                                                          |                              |           |                                |         |                                              |         |                                                     |         |
| 8                                                   | Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.                                                                                                                                                                                                                                                                          |                              |           |                                |         |                                              |         |                                                     |         |
| 9                                                   | To replace the card, use the appropriate procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                                                                                                                                      |                              |           |                                |         |                                              |         |                                                     |         |
| 10                                                  | To synchronize the FP, type<br><b>&gt;SYNC</b>                                                                                                                                                                                                                                                                                                                                   |                              |           |                                |         |                                              |         |                                                     |         |

**PM FP****NoSync minor** (continued)

and press the Enter key.

| <b>If the SYNC command</b>                                | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| passed                                                    | step 12   |
| failed, and you did not replace all the cards on the list | step 11   |
| failed, and you replaced all the cards on the list        | step 16   |
| failed, and the system did not generate a card list       | step 16   |

- 11** Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 9.

- 12** Determine if the inactive side of the FP jammed.

**Note:** The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

*Example of a MAP display:*

|         |   |           |     |      |      |       |       |
|---------|---|-----------|-----|------|------|-------|-------|
| Sync    |   | CPU       | Jam | DRAM | Port | MsgCh | PLink |
| No      |   | state act |     | 0123 | Card | 0 1   | 0 1   |
| Plane 0 | . | A         |     | -... | .    | .     | .     |
| Plane 1 | N | I         | No  | -NNN | .    | .     | .     |

| <b>If the inactive side of the FP</b> | <b>Do</b> |
|---------------------------------------|-----------|
| is jammed                             | step 13   |
| is not jammed                         | step 14   |

- 13** To release the jam on the inactive side of the FP, type  
**>MATEJAM RELEASE**  
and press the Enter key.

*Example of a MAP response:*

```
FP 0 Jam Mate: Request has been submitted.
FP 0 Jam Mate: Command completed.
The inactive CPU is not jammed.
```

- 14** Determine the plane state of the posted FP.

**Note:** The symbol <> under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

*Example of a MAP display:*



---

**PM FP**  
**NoSync minor (end)**

---

|       |         |       |         |
|-------|---------|-------|---------|
| FP 0: | FP3_256 | Plane | Devices |
| InSv  |         | .     | .       |

---

**If the plane state****Do**

is NoSync

step 16

is &lt;&gt; (in service)

step 17

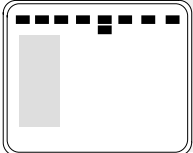
is other than listed here

step 15

- 
- 15** Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 16** For additional help, contact the next level of support.
- 17** The procedure is complete.

**PM FP**  
**PrtFlt minor**

**Alarm display**

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   |                         | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays PrtFlt.

**Meaning**

The port on the FP has two links. A fault on the FP causes the links to be out of service.

The number under the PM header in the MAP banner indicates the number of FPs.

**Result**

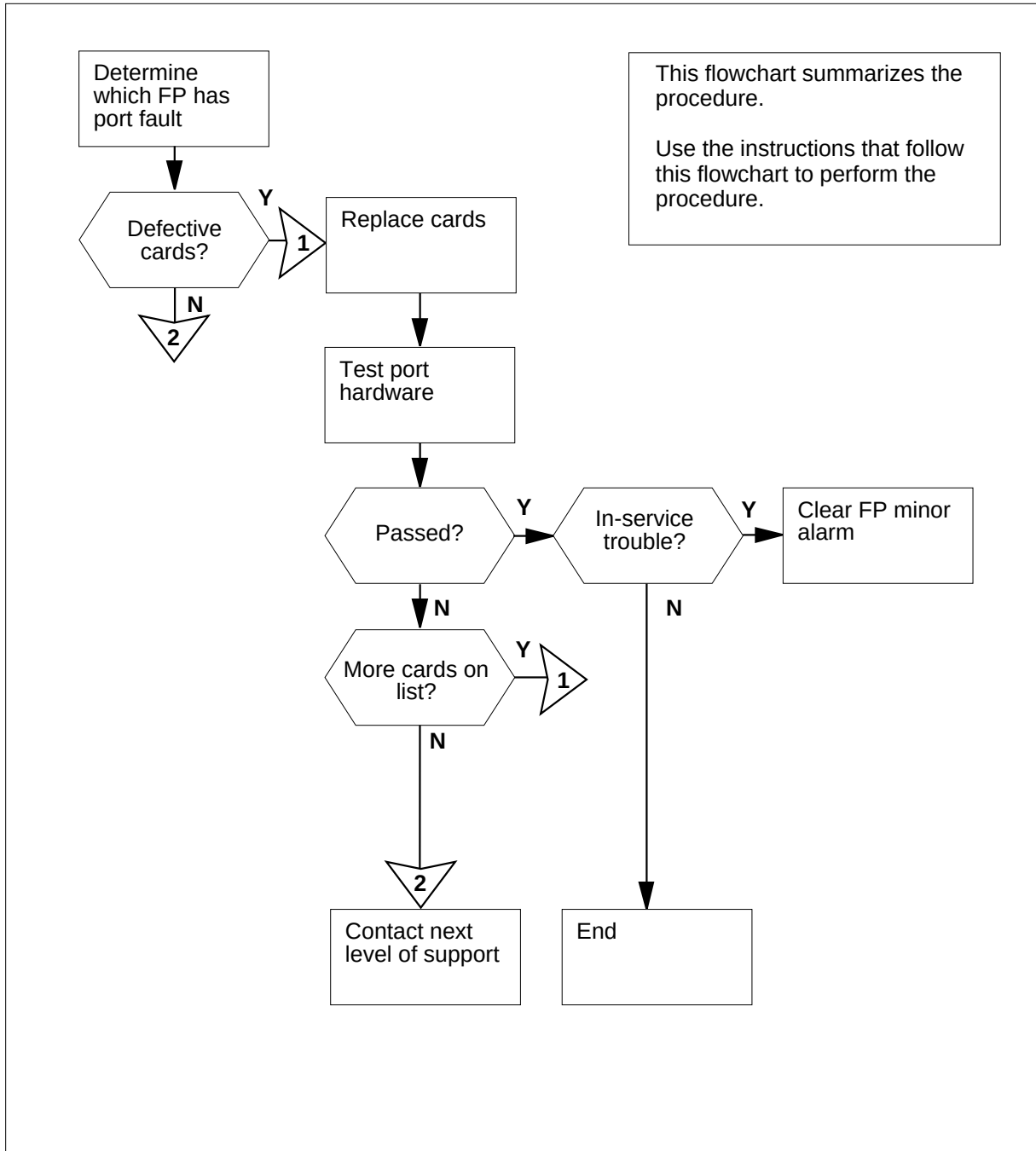
The alarm does not affect subscriber service. A single-plane fault on a port in the other plane can isolate the FP.

**Common procedures**

There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP**  
**PrtFlt minor** (continued)**Summary of clearing a PM FP PrtFlt minor alarm**

PM FP  
PrtFlt minor (continued)

Clearing a PM FP PrtFlt minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the Plane level of the MAP display of the in-service trouble FP, type

**>PLANE**  
and press the Enter key.

Example of a MAP display:

| Sync |         | CPU   | Jam | DRAM    | Port | MsgCh | PLink |
|------|---------|-------|-----|---------|------|-------|-------|
| No   |         | state | act | 0123    | Card | 0 1   | 0 1   |
|      | Plane 0 | .     | A   | -...    | .    | .     | .     |
|      | Plane 1 | .     | I   | No -... | F    | L L   | P P   |

2

To query the port that has the fault, type

**>QUERYPL PORT plane\_no FLT**

and press the Enter key.

where

**plane\_no**

is the number of the inactive plane (0 or 1)

If

Do

the response is TEST, TRAP  
and Split info : Okay

step 10

indication of a fault is present,  
and the system generated a card  
list

step 3

indication of a fault is present,  
and the system did not generate  
a card list

step 10

3

Record the location, product engineering code (PEC), and PEC suffix of the first card on the list.

4

Use the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

**PM FP****PrtFlt minor** (continued)

- 5 To test the port hardware on the inactive plane to service, type

**>TST PORT plane\_no**

and press the Enter key.

where

**surface\_no**

is the number of the inactive plane (0 or 1)

| If the TST command                                        | Do      |
|-----------------------------------------------------------|---------|
| passed                                                    | step 7  |
| failed, and you did not replace all the cards on the list | step 6  |
| failed, and you replaced all the cards on the list        | step 10 |
| failed, and the system did not generate a card list       | step 10 |

- 6 Record the location, PEC, and PEC suffix of the next card on the list.  
Go to step 4.

- 7 To return the port hardware on the inactive plane to service, type

**>RTS PORT plane\_no**

and press the Enter key.

where

**plane\_no**

is the number of the inactive plane (0 or 1)

| If the RTS command                                        | Do      |
|-----------------------------------------------------------|---------|
| passed                                                    | step 8  |
| failed, and you did not replace all the cards on the list | step 10 |

- 8 Determine the port card state of the inactive plane of the posted FP.

*Example of a MAP display:*

**PM FP****PrtFlt minor** (end)

---

| Sync |         | CPU   | Jam | DRAM | Port | MsgCh |   | PLink |   |
|------|---------|-------|-----|------|------|-------|---|-------|---|
| No   |         | state | act | 0123 | Card | 0     | 1 | 0     | 1 |
|      | Plane 0 | .     | A   | -... | .    | .     | . | .     | . |
|      | Plane 1 | .     | I   | No   | -... | L     | L | P     | P |

---

**If the Port Card state****Do**

---

is . (in service)

step 11

is other than listed here

step 9

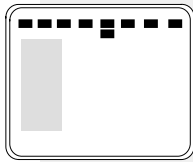
---

**9** Perform the procedure *Clearing a PM FP minor alarm* in this document.**10** For additional help, contact the next level of support.**11** The procedure is complete.

---

**PM FP**  
**PrtTbl minor**

---

**Alarm display**

| CM | MS | IOD | Net | <b>PM</b>  | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1FP</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a file processor minor alarm. The Plane state field of the posted FP displays PrtTbl.

**Meaning**

A link on a port card in the FP is out of service or has in-service trouble.

The number under the PM header in the MAP banner indicates the number of FPs affected.

**Result**

There is no result.

**Common procedures**

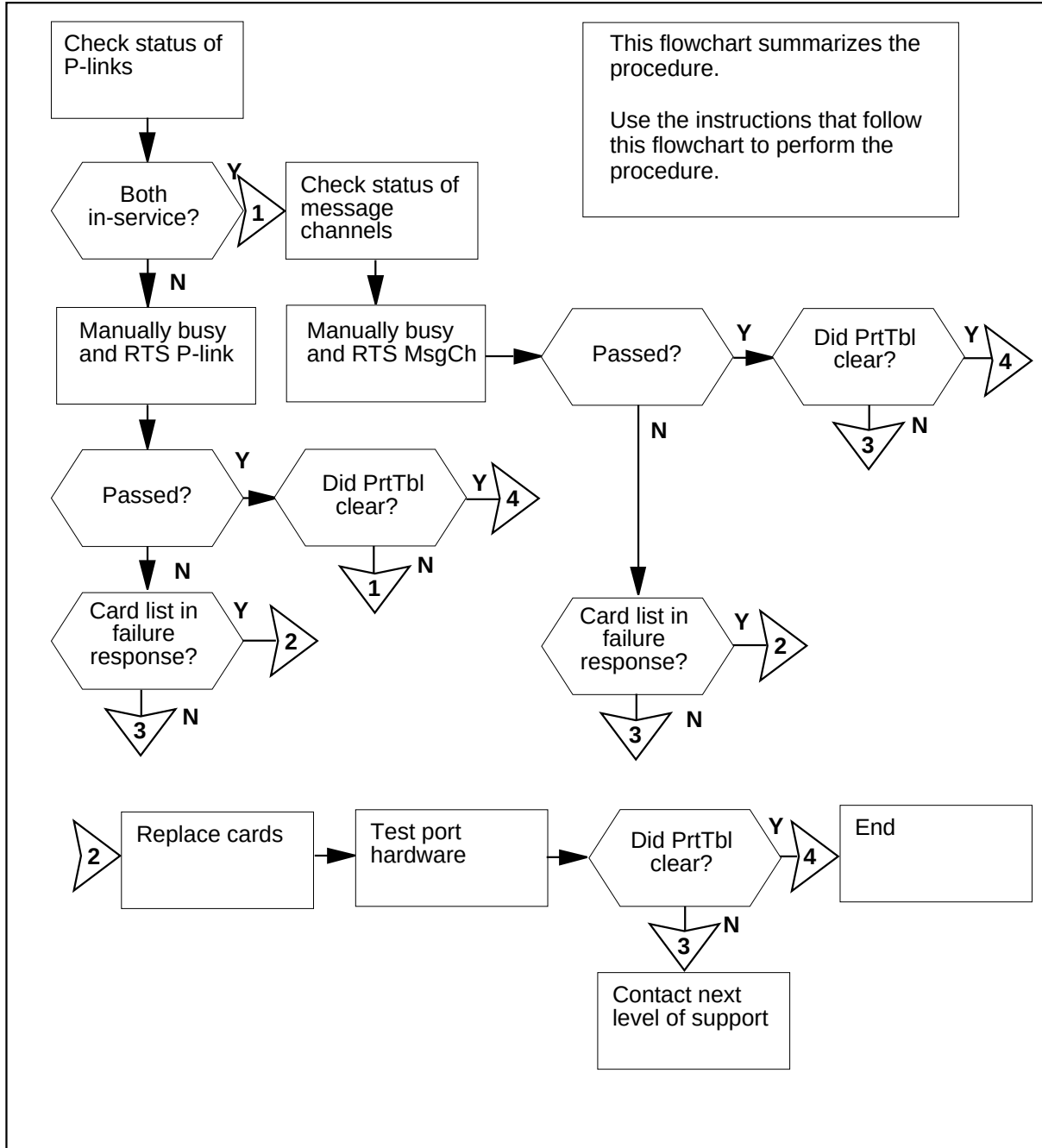
There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FP PrtTbl minor (continued)

### Summary of clearing a PM FP PrtTbl minor alarm





## PM FP PrtTbl minor (continued)

### Clearing a PM FP PrtTbl minor alarm

#### At the MAP terminal

1

#### ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the Plane level of the MAP display of the FP that has port trouble, type

**>PLANE**

and press the Enter key.

*Example of a MAP display:*

| Sync    |   | CPU   | Jam | DRAM | Port | MsgCh | PLink |
|---------|---|-------|-----|------|------|-------|-------|
| No      |   | state | act | 0123 | Card | 0 1   | 0 1   |
| Plane 0 | . | A     |     | -... | .    | .     | .     |
| Plane 1 | . | I     | No  | -... | l    | R     | R     |

2 Determine the PLink state. If more than one fault is present in the PLink fields, clear the highest priority fault first. The following faults are in order of priority:

- system busy (S)
- manual busy (M)
- resource not available (R)
- in-service trouble (I)

| If the PLink state | Do      |
|--------------------|---------|
| is S               | step 5  |
| is M               | step 4  |
| is R               | step 3  |
| is I               | step 5  |
| is . (in service)  | step 13 |

3 Perform the appropriate MS procedure to clear the alarm. Complete the procedure and return to this point.

## PM FP

### PrtTbl minor (continued)

- Go to step 1.
- 4 Determine from office records or operating company personnel why the P-link is manual busy. When you have permission, return the link to service.
- | If                                                         | Do      |
|------------------------------------------------------------|---------|
| you have permission, return the P-link to service          | step 6  |
| you do not have permission to return the P-link to service | step 30 |
- 5 To manually busy the P-link, type  
**>BSY PORT plane\_no PLINK link\_no**  
 and press the Enter key.  
*where*  
**plane\_no**  
 is the number of the inactive plane (0 or 1)  
**link\_no**  
 is the number of the link (0 or 1)
- 6 To return the P-link to service, type  
**>RTS PORT plane\_no PLINK link\_no**  
 and press the Enter key.  
*where*  
**plane\_no**  
 is the number of the inactive plane (0 or 1)  
**link\_no**  
 is the number of the link (0 or 1)
- | If the RTS command                                  | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 11 |
| failed, and the system generated a card             | step 7  |
| failed, and the system did not generate a card list | step 29 |
- 7 Record the location, product engineering code (PEC), and PEC suffix of the first card on the list.
- 8 Use the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

## PM FP PrtTbl minor (continued)

- 9** To return the P-link to service, type  
**>RTS PORT plane\_no PLINK link\_no**  
 and press the Enter key.

where

**plane\_no**  
 is the number of the inactive plane (0 or 1)

**link\_no**  
 is the number of the link (0 or 1)

| If the RTS command                                        | Do      |
|-----------------------------------------------------------|---------|
| passed                                                    | step 11 |
| failed, and you did not replace all the cards on the list | step 10 |
| failed, and you replaced all the cards on the list        | step 29 |
| failed, and the system did not generate a card list       | step 29 |

- 10** Record the location, PEC, and PEC suffix of the next card on the list.  
 Go to step 8.

- 11** Determine the Plane state of the posted FP.

*Example of a MAP response:*

```
FP 3: FP3_256 Plane Devices
InSv . .
```

| If the Plane state        | Do      |
|---------------------------|---------|
| is . (in service)         | step 30 |
| is PrtTbl                 | step 13 |
| is other than listed here | step 12 |

- 12** Perform the procedure *Clearing a PM FP minor alarm* in this document.

- 13** Determine the MsgCh state. The different field values appear below in order of priority. If more than one fault is present in the MsgCh fields, clear the highest priority fault first. The following faults are in order of priority:

- system busy (S)
- manual busy (M)

## PM FP PrtTbl minor (continued)

- resource not available (R)
- in-service trouble (I)

*Example of a MAP display:*

| Sync |         | CPU   | Jam | DRAM    | Port | MsgCh | PLink |
|------|---------|-------|-----|---------|------|-------|-------|
| No   |         | state | act | 0123    | Card | 0 1   | 0 1   |
|      | Plane 0 | .     | A   | -...    | .    | .     | .     |
|      | Plane 1 | .     | I   | No -... | l    | R .   | R .   |

| If the MsgCh state | Do      |
|--------------------|---------|
| is S               | step 16 |
| is M               | step 15 |
| is R               | step 14 |
| is I               | step 16 |

- 14** Perform the correct MS procedure to clear the alarm. Complete the procedure and return to this point.  
Go to step 11.
- 15** Determine from office records or operating company personnel why the message channel is manual busy.

| If                                                                  | Do      |
|---------------------------------------------------------------------|---------|
| you have permission to return the message channel to service        | step 17 |
| you do not have permission to return the message channel to service | step 30 |

- 16** To manually busy the message channel, type  
**>BSY PORT plane\_no MSGCH link\_no**  
and press the Enter key.  
*where*

**plane\_no**  
is the number of the inactive plane (0 or 1)

**link\_no**  
is the number of the link (0 or 1)

- 17** To return the message channel to service, type  
**>RTS PORT plane\_no MSGCH link\_no**  
and press the Enter key.  
*where*

---

**PM FP**  
**PrtTbl minor** (continued)

---

**plane\_no**  
is the number of the inactive plane (0 or 1)

**link\_no**  
is the number of the link (0 or 1)

|           | <b>If the RTS command</b>                                                                                                                                                                                                                                           | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                              | step 11   |
|           | failed, and the system generated a card list                                                                                                                                                                                                                        | step 18   |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                 | step 29   |
| <b>18</b> | Record the location, PEC, and PEC suffix of the first card on the list.                                                                                                                                                                                             |           |
| <b>19</b> | Use the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.                                                                                                                               |           |
| <b>20</b> | To return the message channel to service, type<br><b>&gt;RTS PORT plane_no MSGCH link_no</b><br>and press the Enter key.<br><i>where</i><br><b>plane_no</b><br>is the number of the inactive plane (0 or 1)<br><b>link_no</b><br>is the number of the link (0 or 1) |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                              | step 22   |
|           | failed, and you did not replace all the cards on the list                                                                                                                                                                                                           | step 21   |
|           | failed, and you replaced all the cards on the list                                                                                                                                                                                                                  | step 29   |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                 | step 29   |
| <b>21</b> | Record the location, PEC, and PEC suffix of the next card on the list.<br>Go to step 19.                                                                                                                                                                            |           |
| <b>22</b> | To test the port hardware, type<br><b>&gt;TST PORT plane_no</b><br>and press the Enter key.<br><i>where</i>                                                                                                                                                         |           |

## PM FP

### PrtTbl minor (continued)

|                                                           | <p><b>plane_no</b><br/>is the number of the inactive plane (0 or 1)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|-------------------|---------|-----------------------------------------------------------|---------|-----------------------------------------------------|---------|-----------------------------------------------------|---------|
|                                                           | <table> <tr> <th>If the TST command</th><th>Do</th></tr> <tr> <td>passed</td><td>step 27</td></tr> <tr> <td>failed, and the system generated a card list</td><td>step 23</td></tr> <tr> <td>failed, and the system did not generate a card list</td><td>step 29</td></tr> </table>                                                                                                                                                                                                                                                                                                    | If the TST command | Do | passed            | step 27 | failed, and the system generated a card list              | step 23 | failed, and the system did not generate a card list | step 29 |                                                     |         |
| If the TST command                                        | Do                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| passed                                                    | step 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| failed, and the system generated a card list              | step 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| failed, and the system did not generate a card list       | step 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| 23                                                        | Record the location, PEC, and PEC suffix of the first card on the card list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| 24                                                        | Use the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| 25                                                        | <p>To test the port hardware, type</p> <p><b>&gt;TST PORT plane_no</b></p> <p>and press the Enter key.</p> <p>where</p> <p><b>plane_no</b><br/>is the number of the inactive plane (0 or 1)</p> <table> <tr> <th>If the TST command</th><th>Do</th></tr> <tr> <td>passed</td><td>step 27</td></tr> <tr> <td>failed, and you did not replace all the cards on the list</td><td>step 26</td></tr> <tr> <td>failed, and you replaced all the cards on the list</td><td>step 29</td></tr> <tr> <td>failed, and the system did not generate a card list</td><td>step 29</td></tr> </table> | If the TST command | Do | passed            | step 27 | failed, and you did not replace all the cards on the list | step 26 | failed, and you replaced all the cards on the list  | step 29 | failed, and the system did not generate a card list | step 29 |
| If the TST command                                        | Do                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| passed                                                    | step 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| failed, and you did not replace all the cards on the list | step 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| failed, and you replaced all the cards on the list        | step 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| failed, and the system did not generate a card list       | step 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| 26                                                        | Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 24.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| 27                                                        | <p>Determine the Plane state of the posted FP.</p> <p><b>Note:</b> The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.</p> <p><i>Example of a MAP response:</i></p> <pre> FP 3:   FP3_256   Plane   Devices InSv      .       . </pre> <table> <tr> <th>If the Plane state</th><th>Do</th></tr> <tr> <td>is . (in service)</td><td>step 30</td></tr> <tr> <td>is PrtTbl</td><td>step 29</td></tr> </table>                                                                                                           | If the Plane state | Do | is . (in service) | step 30 | is PrtTbl                                                 | step 29 |                                                     |         |                                                     |         |
| If the Plane state                                        | Do                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| is . (in service)                                         | step 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |
| is PrtTbl                                                 | step 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |    |                   |         |                                                           |         |                                                     |         |                                                     |         |

---

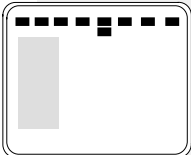
**PM FP**  
**PrtTbl minor (end)**

---

|           | <b>If the Plane state</b>                                                   | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------|-----------|
|           | is other than listed here                                                   | step 28   |
| <b>28</b> | Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document. |           |
| <b>29</b> | For additional help, contact the next level of support.                     |           |
| <b>30</b> | The procedure is complete.                                                  |           |

**PM FP**  
**Trap minor**

**Alarm display**

|                                                                                   |    |    |     |     |                         |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1FP</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   |                         | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The trap appears on the Plane state field of the posted FP.

**Meaning**

The trap rate on the FP approaches a threshold that can initiate a warm restart.

The number under the PM header in the MAP banner indicates the number of FPs affected.

**Result**

The FP CPU takes time to correct faults. A real-time delay problem can occur, for example a slow system response.

**Common procedures**

There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.



## PM FP Trap minor (continued)

### Summary of clearing a PM FP Trap minor alarm

Obtain copies of  
all current  
mismatch logs



Contact next  
level of support



End

This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

## **PM FP**

### **Trap minor** (end)

---

#### **Clearing a PM FP Trap minor alarm**

##### ***At your current location***

- 1** Obtain copies of all current occurrences of the following logs:
  - AP317
  - AP318
  - FP354
- 2** For additional help, contact the next level of support.
- 3** The procedure is complete.

## PM FRIU critical (on an LPP)

### Alarm display

| CM | MS | IOD | Net | PM                                      | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-----------------------------------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>PM</b><br><b>1FRIU</b><br><b>*C*</b> | .   | .   | .    | .   |      |

### Indication

At the MTC level of the MAP display, a number and FRIU appear under the PM header of the alarm banner. The FRIU indicates a critical alarm for the frame relay interface unit (FRIU).

### Meaning

One or more FRIUs are system busy or system busy not available for one of the following reasons:

- The FRIU error interrupts
- The FRIU does not respond to computing module (CM) due to faults. These faults are in the link interface module (LIM), message switch (MS), F-buses, or F-bus taps
- An in-service test fails

The number under the PM header in the alarm banner indicates the number of affected FRIUs.

### Result

The indicated number of FRIUs are out-of-service. The T1 channels for the FRIUs cannot transmit traffic.

### Common procedures

There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

```

graph TD
 Start([Start]) --> Step1[Post and ManB the FRIU]
 Step1 --> Decision1{Is FRIU ManB available?}
 Decision1 -- N --> Step2[Clear LIM, F-bus, and NIU alarms]
 Step2 --> Loop1((1))
 Decision1 -- Y --> Step3[Reset FRIU]
 Step3 --> Decision2{Passed?}
 Decision2 -- N --> Step4[Reload FRIU]
 Step4 --> Decision3{Passed?}
 Decision3 -- Y --> Step5[Test FRIU]
 Decision3 -- N --> Decision4{Is there a card list?}
 Decision4 -- Y --> Step6[Replace cards]
 Step6 --> Loop1
 Decision4 -- N --> Step7[Contact next level of support]
 Step5 --> Decision5{Passed?}
 Decision5 -- N --> Loop2((2))
 Decision5 -- Y --> Step8[Return FRIU to service]
 Step8 --> Decision6{Passed?}
 Decision6 -- Y --> Loop3((3))
 Decision6 -- N --> Step9[Contact next level of support]

```

This flowchart summarizes the procedure.

Use the instructions that follow this flowchart to perform the procedure.

## PM FRIU critical (on an LPP) (continued)

### Clearing a PM FRIU alarm

#### At the MAP display

- 1 To access the peripheral module (PM) level of the MAP display, type  
**>MAPCI ; MTC ; PM**  
and press the Enter key.

*Example of a MAP display*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 2    | 0    | 0    | 0    | 0    | 70   |

- 2 To display the system busy FRIUs, type  
**>POST FRIU SYSB**  
and press the Enter key.

*Example of a MAP display*

|      |     |      |      |
|------|-----|------|------|
| FRIU | 121 | SysB | Rsvd |
|------|-----|------|------|

| If the MAP response                | Do     |
|------------------------------------|--------|
| indicates a SysB or SysB (NA) FRIU | step 6 |
| indicates end of posted set        | step 3 |

- 3 To display the in service problem FRIUs, type  
**>POST FRIU ISTB**  
and press the Enter key.

*Example of a MAP display*

|      |     |           |      |
|------|-----|-----------|------|
| FRIU | 121 | SysB (NA) | Rsvd |
|------|-----|-----------|------|

| If the MAP response         | Do      |
|-----------------------------|---------|
| indicates an ISTb FRIU      | step 4  |
| indicates an ISTb (NA) FRIU | step 6  |
| indicates end of posted set | step 43 |

- 4 To display the next in service problem FRIU, type  
**>NEXT**  
and press the Enter key.

*Example of a MAP display*

## PM FRIU critical (on an LPP) (continued)

FRIU 121 SysB Rsvd

| If the MAP response         | Do      |
|-----------------------------|---------|
| indicates an ISTb FRIU      | step 5  |
| indicates an ISTb (NA) FRIU | step 6  |
| indicates end of posted set | step 43 |

5 Repeat step 4 until an in-service problem not available FRIU appears and you reach the end of the posted set.

6 Record the number of the posted FRIU for use in this procedure.

7 To query the FRIU to determine the frame type, type

**>QUERYPM**

and press the Enter key.

**Note:** A link peripheral processor (LPP) supplies the FRIU, if the header LIM appears. The header for the link interface module (LIM) must appear on the far left of the second line in the response. An SSLPP supplies the FRIU, if the header MS appears. In the example, the header is LIM.

*Example of a MAP response:*

```
FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load: F8X36CJ
Carrier is currently InSv.
Carrier Alarm: -----.
LMS States: InSv InSv
Auditing?: Yes Yes
Msg Channels: Acc Acc
TAPs: . .
```

| If the code | Do     |
|-------------|--------|
| is LIM      | step 9 |
| is MIS      | step 8 |

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an SSLPP)*. Do not return to this procedure.

9 To manually busy the FRIU, type

**>BSY FORCE**

and press the Enter key.

*Example of a MAP response:*

## PM FRIU critical (on an LPP) (continued)

FRIU carrier will be affected by this mtce action.  
Please confirm ("YES", "Y", "NO", or "N"):

- 10** To confirm the command, type

**>YES**

and press the Enter key.

| If the FRIU  | Do      |
|--------------|---------|
| is ManB      | step 29 |
| is ManB (NA) | step 11 |

- 11** To query the FRIU to determine if any related C-side faults are present, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

```
FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load:
Potential service affecting conditions:
 Config Data Mismatch
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
 Host Unit 0 is not inservice
 Host Unit 1 is not inservice
Carrier is currently OffL.
Carrier Alarm: -----.
LMS States: SysB ManB
Auditing?: No No
Msg Channels: NA NA
TAPs: S M
```

- 12** Record the number of the LIM. You will now clear faults for the LIM and F-bus.

**Note:** The number of the LIM appears on the right side of the LIM header.  
The LIM header is on the MAP response in step 11.

- 13** To post the LIM that associates with the FRIU, type

**>POST LIM lim\_no**

and press the Enter key.

*where*

## PM FRIU critical (on an LPP) (continued)

### lim\_no

is the number of the LIM (0 to 16)

*Example of a MAP response:*

```
LIM 0 ISTb
 Links_00S Taps_00S
Unit0: ISTb . 12
Unit1: ISTb . 12
```

- 14** To access the F-bus level of the MAP, type

**>FBUS**

and press the Enter key.

*Example of a MAP response:*

```
LIM 0 ISTb
 Links_00S Taps_00S
Unit0: ISTb . 12
Unit1: ISTb . 12

 Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB .---- - - - - - - - - - -
FBus1: ManB BBBB BBBB BBBB BBBB .---- - - - - - - - - - -
```

**Note:** In the example, symbols under the tap numbers indicate the following:

**B**

F-bus is manually busy or the controlling LIM unit is system busy or manually busy

**S**

system-busy tap

**M**

manually busy tap

**I**

in-service problem tap

**dot (.)**

in-service tap

**-**

tap that is not equipped

- 15** Determine the state of the LIM and both F-buses.

| If the state of the LIM and both F-buses | Do      |
|------------------------------------------|---------|
| is InSv and ISTb                         | step 18 |
| is other than listed here                | step 16 |

- 16** Record the state of the LIM and F-buses that have faults.



## PM FRIU critical (on an LPP) (continued)

- 17** A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the correct alarm clearing procedure in *Alarm and Performance Monitoring Procedures*. Complete the procedure and return to this point.

- 18** To determine the F-bus tap that associates with the FRIU, type

**>TRNSL fbus\_no**

and press the Enter key.

where

**fbus\_no**

is the number of one of the F-buses (0 or 1)

**Note:** The number of the F-bus tap for the FRIU appears in the third column.

*Example of a MAP response:*

```
LIM 0 FBus 0 Tap 0 is on FRIU 121
LIM 0 FBus 0 Tap 1 is on FRIU 122
LIM 0 FBus 0 Tap 2 is on FRIU 123
LIM 0 FBus 0 Tap 3 is on FRIU 124
LIM 0 FBus 0 Tap 4 is on FRIU 125
MORE . . .
```

- 19** Determine the state of the F-bus taps.

**Note:** The tap state appears on the right of the tap header. The tap header is in the MAP display in step 18. The tap number applies to both F-buses.

| If the state of                                 | Do      |
|-------------------------------------------------|---------|
| one or both F-bus taps is M                     | step 22 |
| one F-bus tap is M and the other F-bus tap is S | step 22 |
| one or both F-bus taps are S                    | step 20 |
| both F-bus taps are I or dot (.)                | step 26 |

- 20** Choose a system busy tap to work on.

- 21** To manually busy the system busy F-bus tap, type

**>BSY FBUS fbus\_no tap\_no FORCE**

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

**PM FRIU**  
**critical (on an LPP)** (continued)

---

**tap\_no**

is the number of the F-bus tap (0 to 35)

Go to step 24.

- 22** Choose a manual busy tap to work on.
- 23** Consult office records or operating company personnel. Determine the reason that the tap is manually busy.

Continue this procedure when you receive permission.

- 24** To return the F-bus tap to service, type

**>RTS FBUS fbus\_no tap\_no**

and press the Enter key.

*where***fbus\_no**

is the number of the F-bus (0 or 1)

**tap\_no**

is the number of the F-bus tap (0 to 35)

---

| <b>If the RTS command</b>                                                         | <b>Do</b> |
|-----------------------------------------------------------------------------------|-----------|
| passed                                                                            | step 25   |
| failed, and a card list generated                                                 | step 36   |
| failed, and a card list did not generate                                          | step 32   |
| failed, with the response local maintenance not accessible                        | step 32   |
| failed for a reason other than listed here, and you did not work on the other tap | step 25   |
| failed for a reason other than listed here, and you worked on the other tap       | step 43   |

---

- 25** Determine the state of the other tap.

**Note:** The tap state appears on the right of the tap header. The tap header is in the MAP in step 18. The tap number applies to both F-buses.

---

| <b>If the state of the other tap</b>              | <b>Do</b> |
|---------------------------------------------------|-----------|
| is dot (.) (in service) or I (in-service problem) | step 26   |

---

## PM FRIU critical (on an LPP) (continued)

|    | If the state of the other tap                                                                                                                                                                                                                                              | Do      |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | is M (manually busy)                                                                                                                                                                                                                                                       | step 23 |
|    | is S (system busy)                                                                                                                                                                                                                                                         | step 21 |
| 26 | To quit from the F-bus level of the MAP, type<br><b>&gt;QUIT</b><br>and press the Enter key.                                                                                                                                                                               |         |
| 27 | To return to the PM level of the MAP, type<br><b>&gt;PM</b><br>and press the Enter key.                                                                                                                                                                                    |         |
| 28 | To post the FRIU, type<br><b>&gt;POST FRIU friu_no</b><br>and press the Enter key.<br><i>where</i><br><b>friu_no</b><br>is the number of the FRIU that you work on (0 to 500)<br><i>Example of a MAP response:</i><br><br>FRIU   121 ManB       Rsvd<br><br>Go to step 29. |         |
| 29 | To reset the FRIU, type<br><b>&gt;PMRESET</b><br>and press the Enter key.                                                                                                                                                                                                  |         |
|    | If the PMRESET command                                                                                                                                                                                                                                                     | Do      |
|    | passed                                                                                                                                                                                                                                                                     | step 31 |
|    | failed                                                                                                                                                                                                                                                                     | step 30 |
| 30 | To load the FRIU, type<br><b>&gt;LOADPM</b><br>and press the Enter key.                                                                                                                                                                                                    |         |
|    | If the LOADPM command                                                                                                                                                                                                                                                      | Do      |
|    | passed                                                                                                                                                                                                                                                                     | step 31 |

## PM FRIU critical (on an LPP) (continued)

|    | If the LOADPM command                                                                        | Do      |
|----|----------------------------------------------------------------------------------------------|---------|
|    | failed, with a card list that contained NTEX22 as the first card on the list                 | step 39 |
|    | failed, with a card list that contained NTEX30 or NTEX31 as the first card on the list       | step 31 |
|    | failed, with no card list, and you did not check for LIM or F-bus faults with this procedure | step 11 |
|    | failed, with no card list, and you already cleared LIM and F-bus alarms                      | step 43 |
| 31 | To test the FRIU, type<br>>TST<br>and press the Enter key.                                   |         |
|    | If the TST command                                                                           | Do      |
|    | passed                                                                                       | step 42 |
|    | failed, with a card list                                                                     | step 36 |
|    | failed, with any other result                                                                | step 43 |

### At the frame

32



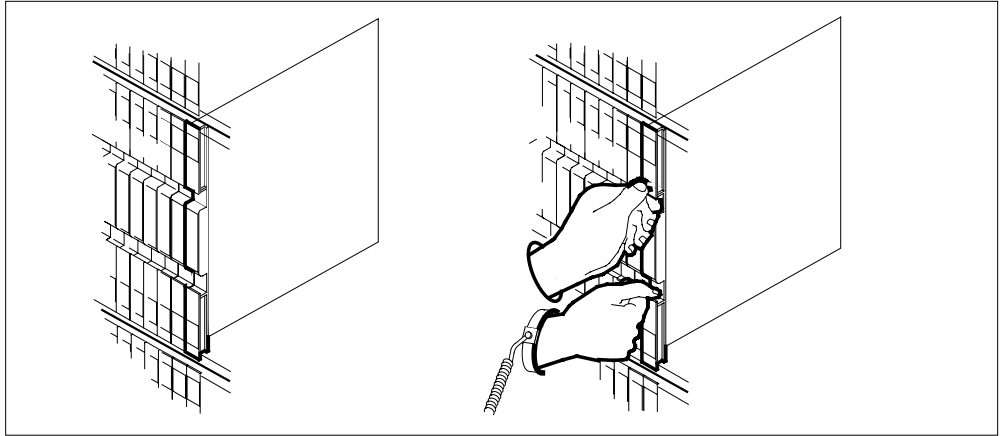
#### **DANGER**

##### **Static electricity damage**

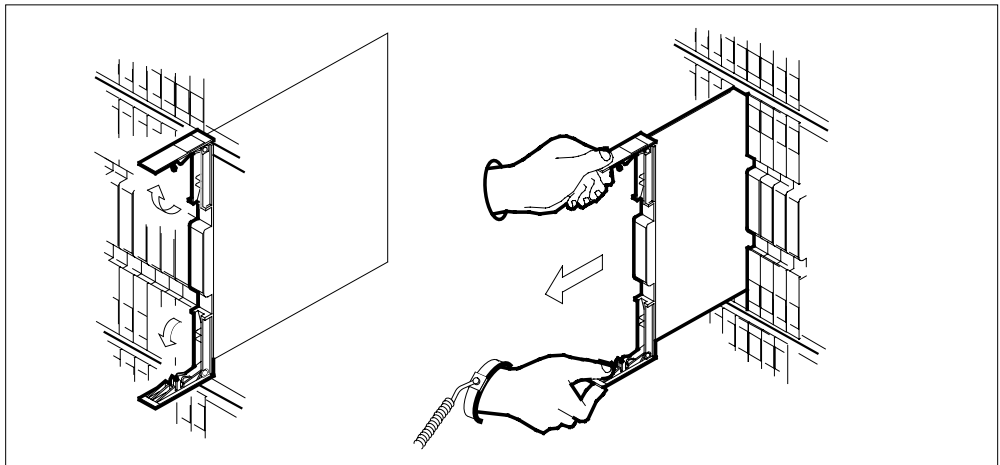
When you handle cards, wear a wrist-strap that connects to the wrist-strap grounding point. The grounding point is on the frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU that you tested. Seat the three cards for the FRIU again.

**PM FRIU**  
**critical (on an LPP)** (continued)



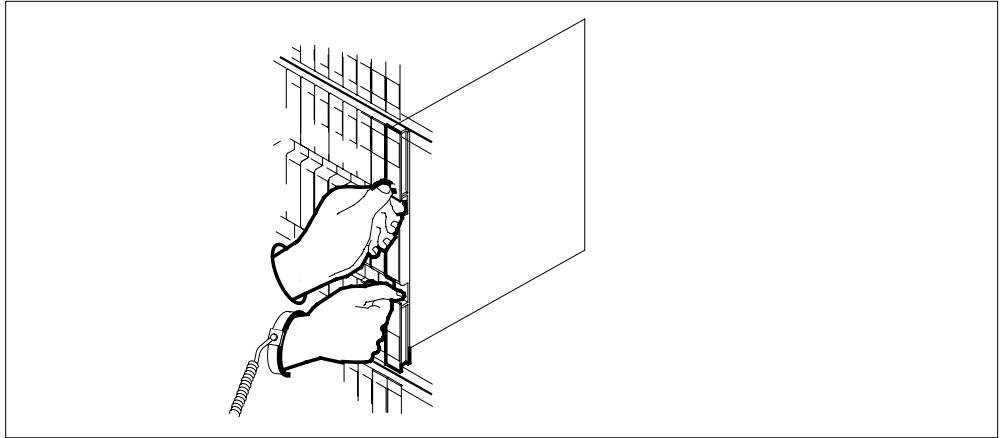
- 33** Carefully raise the locking levers. Pull the card 25 mm (1 in.) toward you.



- 34** Seat and lock the card, as follows:
- a** Push on the upper and lower edges of the faceplate with finger or thumb pressure. Perform this procedure to make sure that the card sits completely in the shelf.
  - b** Close the locking levers.

## PM FRIU critical (on an LPP) (continued)

---



- 35** Repeat steps 32 to 34 for the NTEX31 and NTEX30 cards for the FRIU that you tested.

Go to step 30.

- 36** Record the location, description, slot number, product engineering code (PEC), and PEC suffix, of the cards on the list. Replace cards on the list.

---

| If you | Do |
|--------|----|
|--------|----|

---

|                                                                          |         |
|--------------------------------------------------------------------------|---------|
| did not replace one or more of the cards on the list with this procedure | step 37 |
|--------------------------------------------------------------------------|---------|

|                                                    |         |
|----------------------------------------------------|---------|
| replaced all cards on the list with this procedure | step 41 |
|----------------------------------------------------|---------|

---

- 37** Replace the first card that you did not replace on the list as a result of the alarm clearing procedure. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 38** Go to step 29.

- 39** Determine if you already replaced the NTEX22 card.

---

| If you | Do |
|--------|----|
|--------|----|

---

|                             |         |
|-----------------------------|---------|
| already replaced the NTEX22 | step 43 |
|-----------------------------|---------|

|                            |         |
|----------------------------|---------|
| did not replace the NTEX22 | step 40 |
|----------------------------|---------|

---

- 40** Replace the NTEX22 card. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 41** Go to step 30.

---

**PM FRIU  
critical (on an LPP) (end)**

---

- 42** To return the FRIU to service, type  
**>RTS**  
and press the Enter key.

---

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 44   |
| failed                    | step 43   |

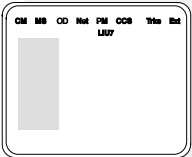
---

- 43** For additional help, contact the next level of support.  
**44** The procedure is complete.

## PM FRIU major on an LPP

---

### Alarm Display

|                                                                                   |    |    |     |     |              |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>    | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1FRIU</b> | .   | .   | .    | .   | .    |
|                                                                                   |    |    |     |     | <b>M</b>     |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, FRIU (preceded by a number) appears under the PM header of the alarm banner. The FRIU indicates a major alarm for a frame-relay interface unit (FRIU).

### Meaning

A minimum of one FRIU is manual busy or manual busy not available for one of the following reasons:

- for maintenance purposes
- for maintenance purposes, and the FRIU does not respond to the computing module (CM)

The number under the PM header of the alarm banner indicates the number of FRIUs affected.

### Result

The indicated number of FRIUs are out of service and the DS-1 channels associated with the FRIUs cannot carry traffic.

### Common procedures

There are no common procedures.

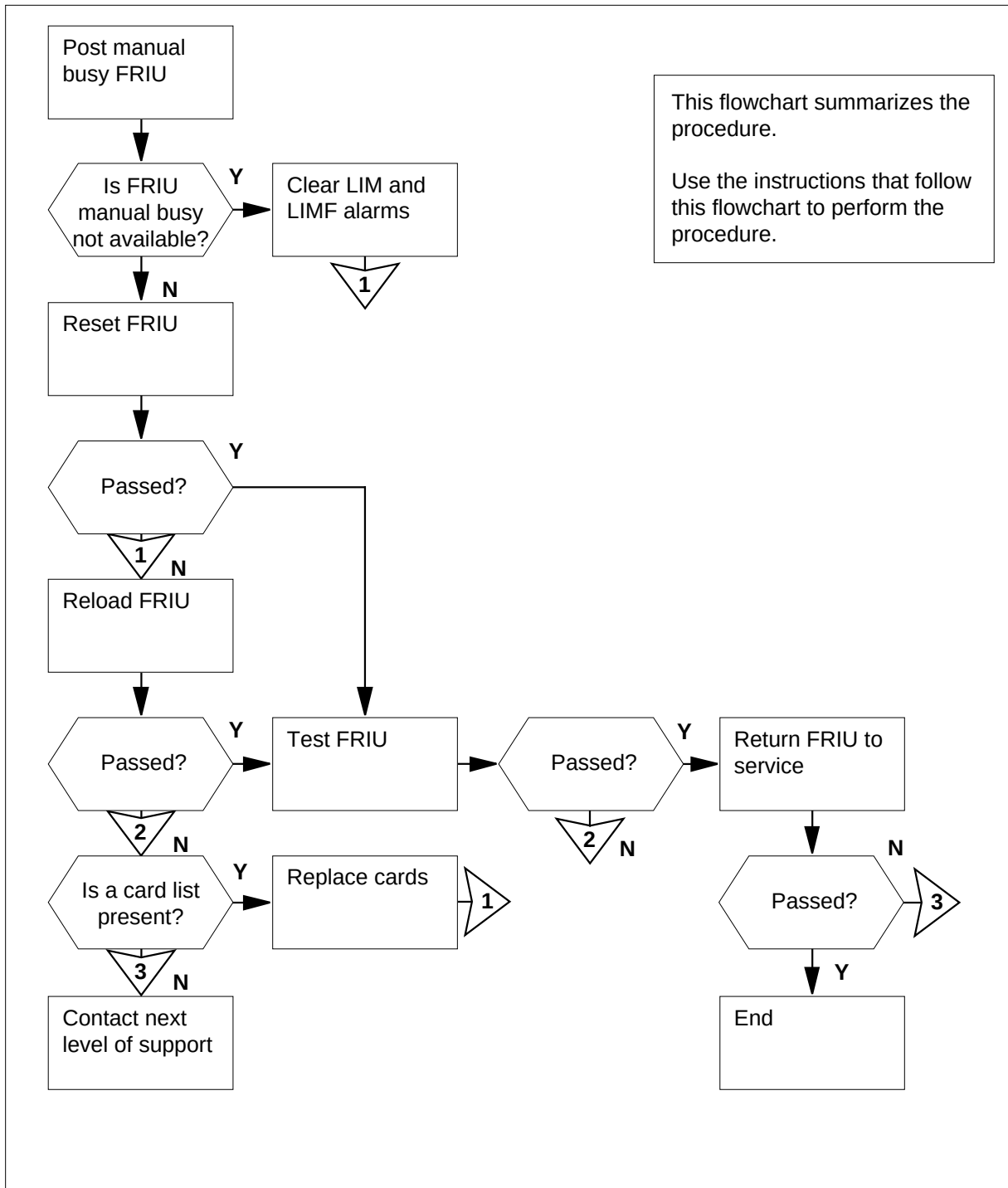
### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps in the procedure.



## PM FRIU major on an LPP (continued)

### Summary of clearing a PM FRIU major alarm (on an LPP)



PM FRIU  
major on an LPP (continued)

Clearing a PM FRIU alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type  
**>MAPCI ; MTC ; PM**  
and press the Enter key.

Example of a MAP display:

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 0    | 2    | 0    | 0    | 0    | 70   |

- 2 To display the manual busy FRIUs, type  
**>POST FRIU MANB**  
and press the Enter key.

Example of a MAP response:

|      |     |      |      |
|------|-----|------|------|
| FRIU | 121 | ManB | Rsvd |
|------|-----|------|------|

| If the MAP response                | Do      |
|------------------------------------|---------|
| indicates a ManB or ManB (NA) FRIU | step 3  |
| indicates End of posted set        | step 39 |

- 3 Record the number of the posted FRIU for use in this procedure.
- 4 To query the FRIU to determine the frame type, type  
**>QUERYPM**  
and press the Enter key.

**Note:** The FRIU is in an LPP if the code LIM appears. The code appears on the far left side of the second line in the response. The FRIU is in an SSLPP if the code MS appears. In the following example, the code is LIM.

Example of a MAP response:

## PM FRIU major on an LPP (continued)

```

FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load: F8X36CJ
Carrier is currently InSv.
Carrier Alarm: -----.
LMS States: InSv InSv
Auditing?: Yes Yes
Msg Channels: Acc Acc
TAPs: . .

```

| If the code | Do     |
|-------------|--------|
| is LIM      | step 6 |
| is MS       | step 5 |

- 5** Perform the procedure *Clearing an FRIU major alarm (on an SSLPP)*. Do not return to this procedure.

- 6** Determine the state of the FRIU from the response you obtained in step 2.

| If the FRIU  | Do      |
|--------------|---------|
| is ManB      | step 25 |
| is ManB (NA) | step 7  |

- 7** To query the FRIU to determine if any related C-side faults are present, type **>QUERYPM** and press the Enter key.

*Example of a MAP response:*

## PM FRIU major on an LPP (continued)

---

```
FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load:
Potential service affecting conditions:
 Config Data Mismatch
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
 Host Unit 1 is not inservice
Carrier is currently OffL.
Carrier Alarm: -----.
LMS States: InSv ManB
Auditing?: No No
Msg Channels: Acc NA
TAPs: I M
```

- 8** Record the number of the LIM. Clear the faults associated with the LIM and F-bus.

**Note:** The number of the LIM appears on the right of the LIM header on the MAP response you obtained in step 7.

- 9** To post the LIM associated with the FRIU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP response:*

```
LIM 0 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 12
Unit1: ISTb . 12
```

- 10** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

*Example of a MAP display:*

## PM FRIU major on an LPP (continued)

```

LIM 0 ISTb
 Links_00S Taps_00S
Unit0: ISTb . 12
Unit1: ISTb . 12

 Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB.---- ---- ---- ---- ----
FBus1: ManB BBBB BBBB BBBB BBBB.---- ---- ---- ---- ----

```

**Note:** The following example displays symbols under the tap numbers. The tap numbers indicate the following:

- B**  
F-bus is manual busy or that the controlling LIM unit is system busy  
or manual busy
- S**  
system-busy tap
- M**  
manual-busy tap
- I**  
in-service trouble tap
- dot (.)**  
in-service tap
- unequipped tap

- 11** Determine the state of the LIM and both F-buses.

| If the state of the LIM and both F-buses | Do      |
|------------------------------------------|---------|
| is InSv and ISTb                         | step 14 |
| is other than listed here                | step 12 |

- 12** Record the state of the LIM and F-buses that have faults.

- 13** A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 14** To determine the F-bus tap associated with the FRIU, type

**>TRNSL fbus\_no**

and press the Enter key.

where

**fbus\_no**  
is the number of one of the F-buses (1 or 0)

**Note:** The number of the F-bus tap associated with the FRIU appears in the third column.

## PM FRIU major on an LPP (continued)

*Example of a MAP response:*

```
LIM 0 FBus 0 Tap 0 is on FRIU 121
LIM 0 FBus 0 Tap 1 is on FRIU 122
LIM 0 FBus 0 Tap 2 is on FRIU 123
LIM 0 FBus 0 Tap 3 is on FRIU 124
LIM 0 FBus 0 Tap 4 is on FRIU 125
MORE...
```

- 15** Determine the state of the F-bus taps.

**Note:** The tap state appears on the right of the tap header in the MAP display you obtained in step 10. The tap number applies to both F-buses.

| If the state of                                 | Do      |
|-------------------------------------------------|---------|
| one or both F-bus taps is M                     | step 18 |
| one F-bus tap is M and the other F-bus tap is S | step 18 |
| one or both F-bus taps is S                     | step 16 |
| both F-bus taps is I or dot (.)                 | step 22 |

- 16** Choose a system busy tap to work on.

- 17** To manually busy the system busy F-bus tap, type

**>BSY FBUS fbus\_no tap\_no FORCE**

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

**tap\_no**

is the number of the F-bus tap (0 to 35)

Go to step 20.

- 18** Choose a manual busy tap to work on.

- 19** Determine from office records or from operating company personnel why the tap is busy.

When you have permission, continue this procedure.

- 20** To return the F-bus tap to service, type

**>RTS FBUS fbus\_no tap\_no**

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

## PM FRIU major on an LPP (continued)

**tap\_no**  
is the number of the F-bus tap (0 to 35)

| If the RTS command                                                 | Do      |
|--------------------------------------------------------------------|---------|
| passed                                                             | step 21 |
| failed, and the system generated a card list                       | step 32 |
| failed, and the system did not generate a card list                | step 28 |
| failed, with the response local maintenance not accessible         | step 28 |
| failed for any other reason, and you did not work on the other tap | step 21 |
| failed for any other reason, and you worked on the other tap       | step 39 |

- 21** Determine the state of the other tap.

**Note:** The tap state appears on the right of the Tap header in the MAP display you obtained in step 10. The tap number applies to both F-buses.

| If the state of the other tap                     | Do      |
|---------------------------------------------------|---------|
| is dot (.) (in service) or I (in-service trouble) | step 22 |
| is M (manual busy)                                | step 20 |
| is S (system busy)                                | step 16 |

- 22** To quit from the F-bus level of the MAP display, type

**>QUIT**

and press the Enter key.

- 23** To return to the PM level of the MAP display, type

**>PM**

and press the Enter key.

- 24** To post the FRIU, type

**>POST FRIU friu\_no**

and press the Enter key.

where

**friu\_no**  
is the number of the FRIU (0 to 500)

**PM FRIU**  
**major on an LPP** (continued)

---

FRIU      121   ManB                      Rsvd

Go to step 26.

25      To reset the FRIU, type  
**>PMRESET**  
and press the Enter key.

| If the PMRESET command | Do      |
|------------------------|---------|
| passed                 | step 27 |
| failed                 | step 26 |

26      To load the FRIU, type  
**>LOADPM**  
and press the Enter key.

| If                                                                                            | Do      |
|-----------------------------------------------------------------------------------------------|---------|
| passed                                                                                        | step 27 |
| failed, with a card list that contains NTEX22 as the first card on the list                   | step 35 |
| failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list         | step 27 |
| failed, with no card list and you did not use this procedure to check for LIM or F-bus faults | step 7  |
| failed, with no card list and you cleared LIM and F-bus alarms                                | step 39 |

27      To test the FRIU, type  
**>TST**  
and press the Enter key.

| If the TST command            | Do      |
|-------------------------------|---------|
| passed                        | step 38 |
| failed, with a card list      | step 32 |
| failed, with any other result | step 39 |



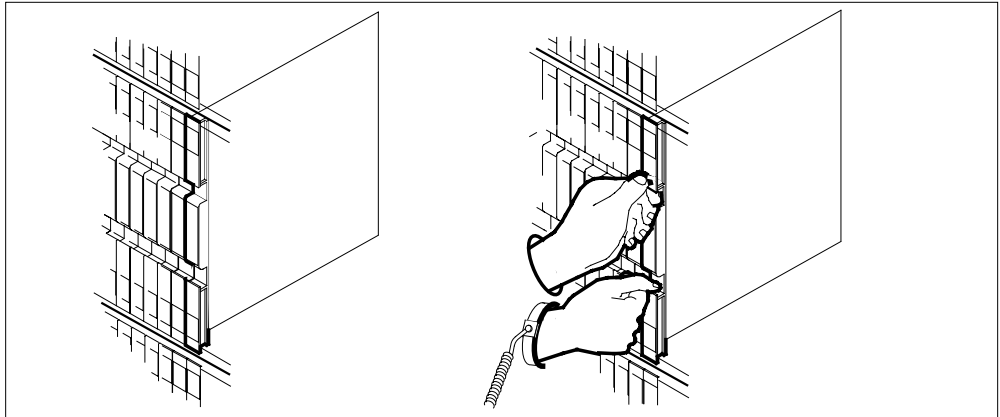
**PM FRIU**  
**major on an LPP (continued)***At the frame*

28

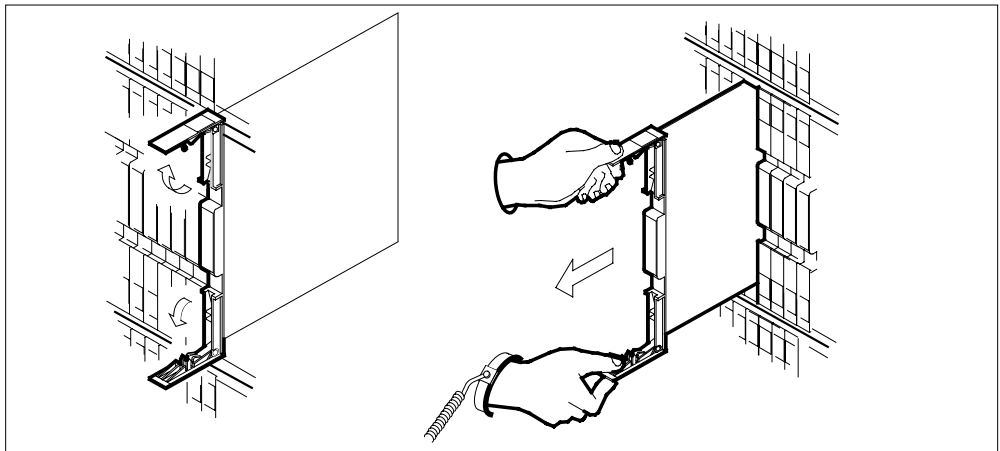
**WARNING****Static electricity damage**

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



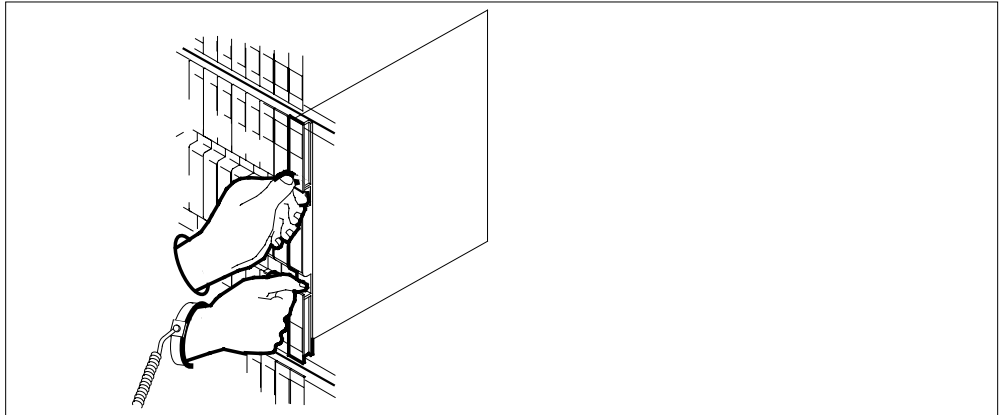
**29** Lift the locking levers. Pull the card toward you 25 mm (1 in.).



**30** Seat and lock the card as follows:

## PM FRIU major on an LPP (continued)

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- b Close the locking levers.



- 31 Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU. Go to step 26.

- 32 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

| If you                                                                | Do      |
|-----------------------------------------------------------------------|---------|
| do not replace a minimum of one card on the list using this procedure | step 33 |
| replace all cards on the list using this procedure                    | step 39 |

- 33 Replace the first card on the list that you did not replace as a result of this alarm. Perform the correct procedure in *Card Replacement Procedures* to clear the alarm. Complete the procedure and return to this point.

- 34 Go to step 25.

- 35 Determine if replacement of the NTEX22 card occurred.

| If replacement of the NTEX22 | Do      |
|------------------------------|---------|
| occurred                     | step 39 |
| did not occur                | step 36 |

- 36 Perform the correct procedure in *Card Replacement Procedures* to replace the NTEX22 card. Complete the procedure and return to this point.

- 37 Go to step 36.

- 38 To return the FRIU to service, type  
>RTS

---

**PM FRIU**  
**major on an LPP (end)**

---

and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 40   |
| failed                    | step 39   |

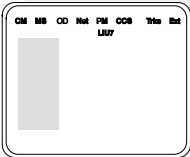
**39** For additional help, contact the next level of support.

**40** The procedure is complete.

## PM FRIU minor on an LPP

---

### Alarm Display

|                                                                                   |    |    |     |     |              |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b>    | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | <b>1FRIU</b> | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, FRIU (preceded by a number) appears under the PM header of the alarm banner. The FRIU indicates a minor alarm for a frame relay interface unit (FRIU).

### Meaning

A minimum of one FRIU has in-service trouble for one of the following reasons:

- run and default load names do not match
- one tap is out of service
- one link interface module (LIM) unit is out of service for FRIUs provisioned on a link peripheral processor (LPP)
- one message switch (MS) unit is out of service for FRIUs provisioned on a single-shelf LPP (SSLPP)
- one F-bus is out of service

The number under the PM header of the alarm banner indicates the number of affected FRIUs.

### Result

FRIUs with in-service trouble continue to function. The trouble does not affect the traffic on the DS-1 channels that associate with the FRIUs.

### Common procedures

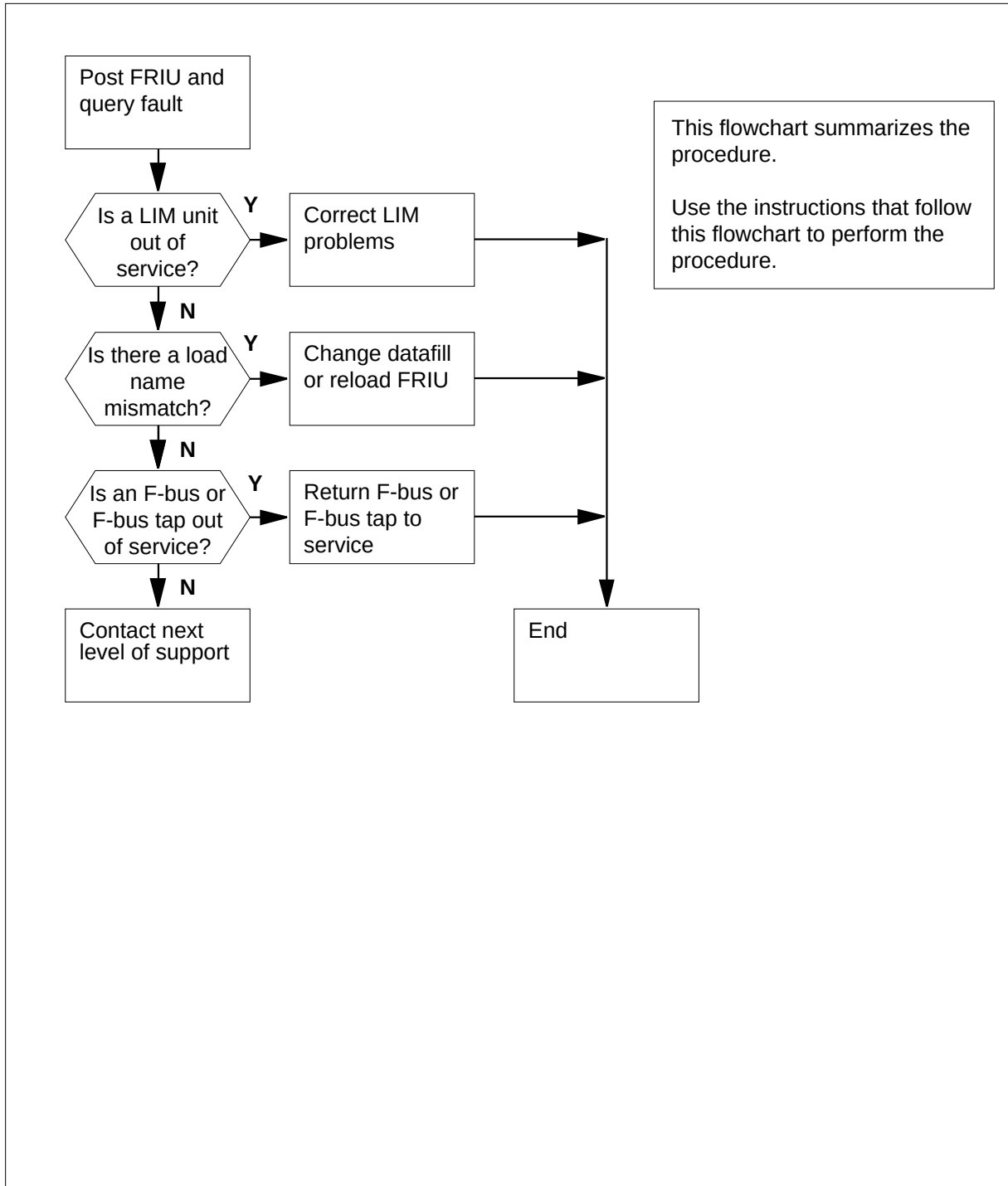
There are no common procedures.

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

## PM FRIU minor on an LPP (continued)

### Summary of clearing a PM FRIU minor alarm (on an LPP)



## PM FRIU minor on an LPP (continued)

---

### Clearing a PM FRIU alarm

#### *At the MAP terminal*

1



#### **WARNING**

##### **Possible service-affecting action**

Removal of an FRIU from service can be a requirement to complete the following procedure. When you take an FRIU out of service, loss of service can occur on the associated access or trunking DS-1 channels. When instructed, manually busy an FRIU during a period of low traffic.

To access the PM level of the MAP display, type

**>MAPCI;MTC;PM**

and press the Enter key.

*Example of a MAP display:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 0    | 0    | 0    | 0    | 2    | 72   |

2

To post in-service trouble FRIUs, type

**>POST FRIU ISTB**

and press the Enter key.

*Example of a MAP display:*

|      |     |      |      |
|------|-----|------|------|
| FRIU | 121 | ISTb | Rsvd |
|------|-----|------|------|

3

To query the FRIU to determine the frame type, type

**>QUERYPM**

and press the Enter key.

**Note:** The FRIU provisions in an LPP if the code LIM is shown to the far left of the second line in the response. The FRIU provisions in an SSLPP if the code MS is shown. In the example, the code is LIM.

*Example of a MAP response:*

## PM FRIU minor on an LPP (continued)

```

FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load: F8X36CJ
Carrier is currently InSv.
Carrier Alarm: -----.
Istb conditions:
 Msg Channel #0 NA
 TAP #0 OOS/NA
LMS States: InSv InSv
Auditing?: Yes Yes
Msg Channels: NA Acc
TAPs: S .

```

| If the code | Do     |
|-------------|--------|
| is LIM      | step 5 |
| is MS       | step 4 |

- 4 Perform the procedure *Clearing a PM FRIU minor alarm (on an SSLPP)* in this document. Do not return to this procedure.
- 5 Determine the fault reason for the posted FRIU from the response you obtained in step 3.  
If the response cleared from the MAP display and you want to obtain another query result, type  
**>QUERYPM**  
and press the Enter key.

**Note:** The fault reason appears under the ISTb conditions header in the response.

| If the fault reason                                               | Do      |
|-------------------------------------------------------------------|---------|
| is Msg Channel #x NATAP #x<br>OOS/NAHost Unit x is not inservice  | step 6  |
| is Loadname mismatch                                              | step 14 |
| is Msg Channel #x NATAP #x<br>OOS/NA                              | step 25 |
| switches repeatedly between more<br>than one of the above reasons | step 58 |

- 6 Determine the number of the LIM associated with the FRIU from the MAP response you obtained in step 8. Clear faults associated with the LIM.

## PM FRIU minor on an LPP (continued)

If the response cleared from the MAP display and you want to obtain another query result, type

**>QUERYPM**

and press the Enter key.

**Note:** The LIM number appears on the second line of the MAP response.

- 7 To post the LIM that associates with the in-service trouble FRIU, type

**>POST LIM lim\_no**

and press the Enter key.

where

**lim\_no**

is the LIM number (0 to 16)

*Example of a MAP display:*

```
LIM 0 ISTb
 Links_00S Taps_00S
Unit0: ISTb . 1
Unit1: InSv . 0
```

- 8 Determine the state of both LIM units.

| If                                                 | Do      |
|----------------------------------------------------|---------|
| the state of both LIM units is either InSv or ISTb | step 11 |
| one LIM unit is in any other state                 | step 9  |

- 9 Record the number and the state of the LIM unit that has faults.

- 10 A problem with the LIM unit produces a PM LIM alarm. Perform the correct procedure in *Alarm and Performance Monitoring Procedures* to clear the alarm. Complete the procedure and return to this point.

- 11 To post the FRIU, type

**>POST FRIU friu\_no**

and press the Enter key.

where

**friu\_no**

is the number of the FRIU that you are working on (0 to 500)

*Example of a MAP display:*

```
FRIU 121 InSv Rsvd
```

| If the state of the FRIU | Do      |
|--------------------------|---------|
| is InSv                  | step 59 |



## PM FRIU minor on an LPP (continued)

|    | If the state of the FRIU                                                                                                                                                                                                                                                                                                                                                                                                                               | Do      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|    | is ISTb                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 12 |
|    | is other than listed here                                                                                                                                                                                                                                                                                                                                                                                                                              | step 13 |
| 12 | To query the fault reason, type<br><b>&gt;QUERYPM FLT</b><br>and press the Enter key.                                                                                                                                                                                                                                                                                                                                                                  |         |
|    | If the fault reason                                                                                                                                                                                                                                                                                                                                                                                                                                    | Do      |
|    | changed                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 5  |
|    | did not change                                                                                                                                                                                                                                                                                                                                                                                                                                         | step 58 |
| 13 | The state of the FRIU deteriorated, and alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.                                                                                                                                                                                                                                                                            |         |
| 14 | Determine the default load and the running load for the FRIU from the MAP response you obtained in step 8.<br><br>If the response cleared from the MAP and you want to obtain another query result, type<br><b>&gt;QUERYPM</b><br>and press the Enter key.<br><br><b>Note:</b> The name of the default load appears next to the Default Load header in the MAP response. The name of the running load appears to the right of the Running Load Header. |         |
| 15 | Determine the correct name for the load from office records or from operating company personnel.<br><br><b>Note:</b> The datafilled load name in table PMLOADS must be correct.                                                                                                                                                                                                                                                                        |         |
|    | If                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Do      |
|    | both the default load name and the running load name do not match the load name you obtained from office records                                                                                                                                                                                                                                                                                                                                       | step 16 |
|    | only the default load name does not match the load name you obtained from office records                                                                                                                                                                                                                                                                                                                                                               | step 16 |
|    | only the running load name does not match the load name you obtained from office records                                                                                                                                                                                                                                                                                                                                                               | step 24 |
| 16 | To access table LIUINV, type<br><b>&gt;TABLE LIUINV</b>                                                                                                                                                                                                                                                                                                                                                                                                |         |

## PM FRIU minor on an LPP (continued)

---

and press the Enter key.

*Example of a MAP response:*

TABLE: LIUINV

- 17 To position on the datafill for the FRIU, type

**>POSITION friu\_no**

and press the Enter key.

*where*

**friu\_no**

is the number of the FRIU (0 to 500)

*Example of a MAP response:*

```
FRIU 121 LIM 0 2 12 XRX35CJ NTEX22BB
 NTEX30AA NTEX31BA
```

- 18 To change the load name datafilled for the FRIU to match the name you obtained from office records, type

**>CHANGE LOAD**

and press the Enter key.

*Example of a MAP response:*

ENTER Y TO CONTINUE PROCESSING OR N TO QUIT

- 19 To confirm the command, type

**>Y**

and press the Enter key.

- 20 To enter the correct load name, type

**>loadname**

and press the Enter key.

*where*

**loadname**

is the name of the correct load

*Example of a MAP response:*

```
TUPLE TO BE CHANGED:
FRIU 121 LIM 0 2 12 XRX36CJ NTEX22BB
 NTEX30AA NTEX31BA
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 21 To confirm the command, type

**>Y**

and press the Enter key.

## PM FRIU minor on an LPP (continued)

- 22 To quit table LIUINV, type  
**>QUIT**  
and press the Enter key.
- 23 Determine if the name of the running load matches the load name you obtained from office records.
- | If the running load name                                 | Do      |
|----------------------------------------------------------|---------|
| does not match the name you obtained from office records | step 24 |
| matches the name you obtained from office records        | step 59 |
- 24 To manually busy the FRIU, type  
**>BSY FORCE**  
and press the Enter key.  
Go to step 55.
- 25 Determine the number of the LIM that associates with the FRIU and the tap number. Determine these numbers from the MAP response you obtained in step 8.  
  
If the response cleared from the MAP display and you want to obtain another query result, type  
**>QUERYPM**  
and press the Enter key.  
  
**Note:** The LIM number appears on the third line of the MAP response. The tap number appears to the right of the TAP header of the MAP response.
- 26 Record the number of the LIM and the number of the F-bus tap. Clear faults that associate with the LIM and the F-bus.  
  
**Note:** The number of the LIM appears to the right of the LIM header on the MAP response you obtained in step 3. The number of the F-bus tap appears to the right of the TAP header.
- 27 To post the LIM that associates with the FRIU, type  
**>POST LIM lim\_no**  
where  
**lim\_no**  
is the number of the LIM (0 to 16)  
  
*Example of a MAP display:*
- ```

LIM  0  ISTb
                                Links_00S  Taps_00S
Unit0: ISTb                      .         12
Unit1: InSv                      .          0

```

PM FRIU minor on an LPP (continued)

- 28 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```
LIM  0 ISTb
                                Links_00S Taps_00S
Unit0: ISTb                    .          12
Unit1: InSv                    .          0

                                Tap: 0    4    8    12   16   20   24   28   32
FBus0: ManB  BBBB BBBB BBBB BBBB .---- .---- .---- .---- .----
FBus1: InSv   .... .... .... .... .---- .---- .---- .---- .----
```

Note: In the previous example, symbols under the tap numbers indicate the following:

B

F-bus is manual busy or the controlling LIM unit is system busy

or manual busy

S

system busy tap

M

manual busy tap

I

in-service trouble tap

dot (.)

in-service tap

-

unequipped tap

- 29 Determine the state of the F-buses.

Note: The state of the F-buses appears to the right of the F-bus header on the MAP display.

If the state of	Do
one of the F-buses is SysB or ManB and the other is either InSv or ISTb	step 30
both F-buses is either InSv or ISTb	step 37

- 30 Record the state of the F-bus that has faults.

- 31 A problem with an F-bus produces a PM LIMF alarm. Perform the correct PM LIMF procedures in this document to clear the alarm. Complete the procedure and return to this point.

- 32 To post the FRIU, type

>PM;POST FRIU friu_no

PM FRIU minor on an LPP (continued)

and press the Enter key.

where

friu_no

is the number of the FRIU that you are working on (0 to 500)

Example of a MAP display:

```
FRIU   121  InSv          Rsvd
```

If the state of the FRIU	Do
is InSv	step 59
is ISTb	step 34
is other than listed here	step 33

- 33** The state of the FRIU deteriorated, and the alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.

- 34** To query the fault reason, type

>QUERYPM FLT

and press the Enter key.

If the fault reason	Do
changed	step 5
did not change	step 35

- 35** To post the LIM that associates with the FRIU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP display:

```
LIM   0  InSv          Links_00S  Taps_00S
Unit0: InSv          .           1
Unit1: InSv          .           0
```

- 36** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

PM FRIU minor on an LPP (continued)

```

LIM  0 InSv
                                Links_00S Taps_00S
Unit0: InSv                    .          1
Unit1: InSv                    .          0

                                Tap: 0    4    8    12   16   20   24   28   32
FBus0: InSv  ....  ....  .S..  ....  -----
FBus1: InSv  ....  ....  ....  ....  -----

```

If the state of both F-buses	Do

is InSv or ISTb

step 37

is other than listed here

step 58

- 37** Determine the state of the F-bus taps for the FRIU in use. Use the MAP response you obtained in the previous step.
- Note:** The tap state appears to the right of the Tap header in the MAP response in the previous step. The tap number applies to both F-buses.

If the state of	Do

both F-bus taps is I or dot (.) and the state of the associated FRIU is not InSv

step 38

both F-bus taps is I or dot (.) and the state of the associated FRIU is InSv

step 39

one F-bus tap is S

step 40

one F-bus tap is M

step 41

- 38** To query the fault reason, type

>QUERYPM FLT

and press the Enter key.

If the fault reason	Do

changed

step 5

did not change

step 58

- 39** The system corrected the cause of the FRIU minor alarm and the alarm cleared.

Go to step 59.

- 40** To manually busy the system busy F-bus tap, type

>BSY FBUS fbus_no tap_no FORCE

and press the Enter key.

PM FRIU minor on an LPP (continued)

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

Go to step 42.

- 41** Determine the cause of the busied tap from office records or from operating company personnel.

When you have permission, continue the procedure.

- 42** To return the F-bus tap to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 35)

If the command	Do
passed	step 43
failed, and the system generates a card list that includes the NTEX22, NTEX30, or NTEX31	step 51
failed, and the system did not generate a card list	step 46
failed, with the responselocal maintenance not accessible	step 46
failed, with a response that is other than listed here	step 58

- 43** To post the FRIU, type

>PM;POST FRIU friu_no

and press the Enter key.

where

friu_no
is the number of the FRIU that you are working on (0 to 500)

Example of a MAP display:

PM FRIU
minor on an LPP (continued)

	FRIU	121	InSv	Rsvd
	If the state of the FRIU		Do	
	is InSv		step 59	
	is ISTb		step 44	
	is other than listed here		step 45	
44	To query the fault reason, type >QUERYPM FLT and press the Enter key.			
	If the fault reason		Do	
	changed		step 5	
	did not change		step 58	
45	The state of the FRIU deteriorated, and the alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.			
46	To post the FRIU, type PM;POST FRIU friu_no and press the Enter key. <i>where</i> friu_no is the number of the FRIU (0 to 500) <i>Example of a MAP display:</i>			
	FRIU	121	ISTb	Rsvd

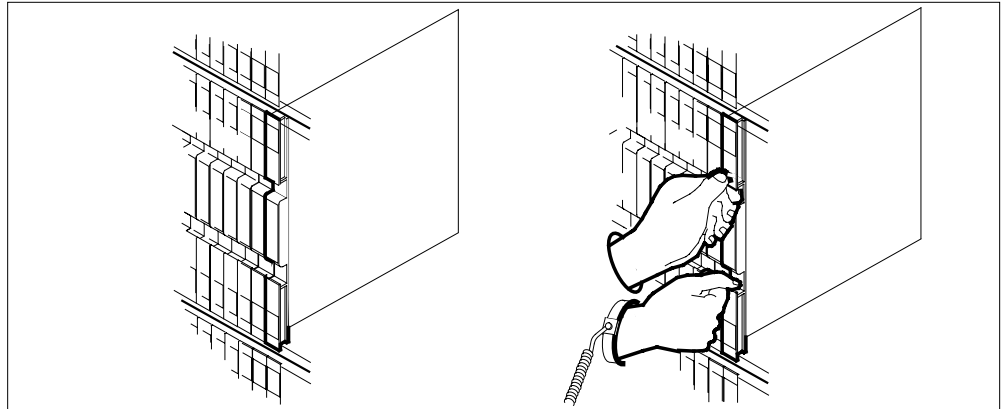
PM FRIU
minor on an LPP (continued)*At the frame*

47

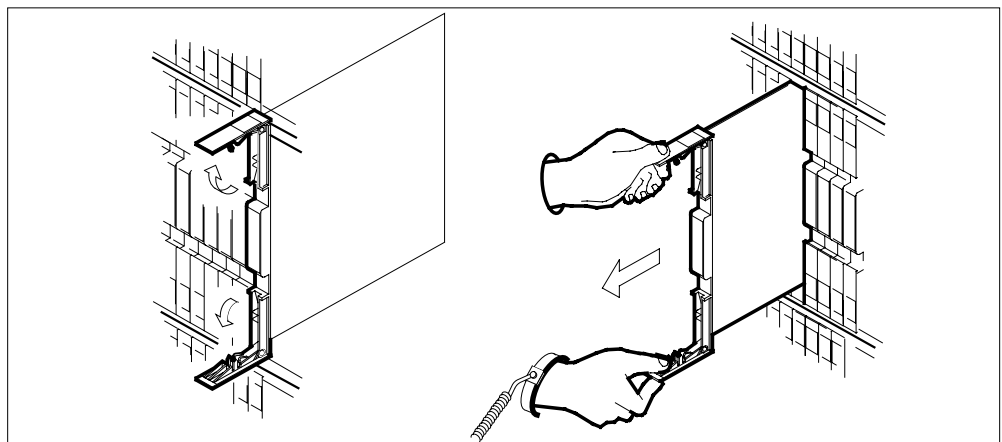
**WARNING****Static electricity damage**

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put into correct position the three cards for the FRIU.



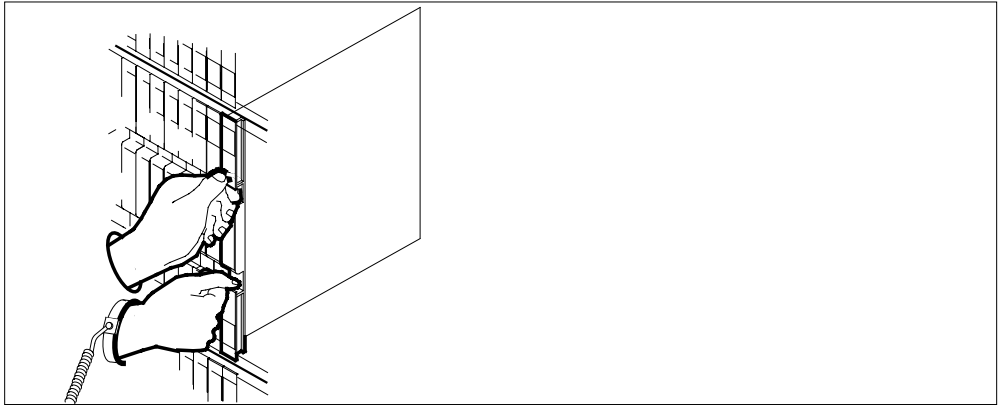
48 Lift the locking levers. Pull the card toward you 25 mm (1 in.).



49 Seat and lock the card as follows:

PM FRIU minor on an LPP (continued)

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- b Close the locking levers.



- 50 Repeat steps 47 to 49 for the NTEX30 and NTEX31 card for the FRIU.
Go to step 55.
- 51 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.
- 52 To post the FRIU, type
>PM;POST FRIU friu_no
and press the Enter key.
where
friu_no
is the number of the FRIU (0 to 500)
Example of a MAP display:

FRIU	121	ISTb	Rsvd
- 53 To manually busy the FRIU, type
>BSY FORCE
and press the Enter key.
- 54 Replace the first card on the list that you did not replace as a result of this alarm clearing procedure. Perform the correct procedure in *Card Replacement Procedures* to replace the cards. Complete the procedure and return to this point.
- 55 To load the FRIU, type
>LOADPM

PM FRIU minor on an LPP (end)

and press the Enter key.

If the LOADPM command	Do
passed	step 56
failed, without a card list and you put into correct position all cards	step 58
failed, without a card list and you did not put into correct position all cards	step 47
failed, with a card list and you did not replace a minimum of one card on the list	step 54
failed, with a card list and you replaced all cards on the list	step 58

- 56** To test the FRIU, type
>TST
and press the Enter key.

If the TST command	Do
passed	step 57
failed, with a card list and you did not replace a minimum of one card on the list	step 54
failed, with a card list and you replaced all cards on the list	step 58

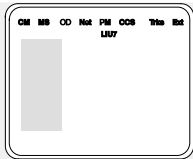
- 57** To return the FRIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 59
failed	step 58

- 58** For additional help, contact the next level of support.
59 The procedure is complete.

PM FRIU
critical (on an SSLPP)

Alarm display

	CM	MS	IOD	Net	PM 1FRIU * C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.		.	.	.	.	

Indication

At the MTC level of the MAP display, a number and FRIU appear under the PM header of the alarm banner. The FRIU indicates a critical alarm for the frame relay interface unit (FRIU).

Meaning

One or more FRIUs are system busy or system busy not available for one of the following reasons:

- The FRIU error interrupts
- The FRIU does not respond to computing module (CM) due to faults in the message switch (MS), F-buses, or F-bus taps
- An in-service test fails

The number under the peripheral module (PM) header in the alarm banner indicates the number of affected FRIUs.

Result

The indicated FRIUs are out-of-service. The DS-1 channels for the FRIUs cannot carry traffic.

Common procedures

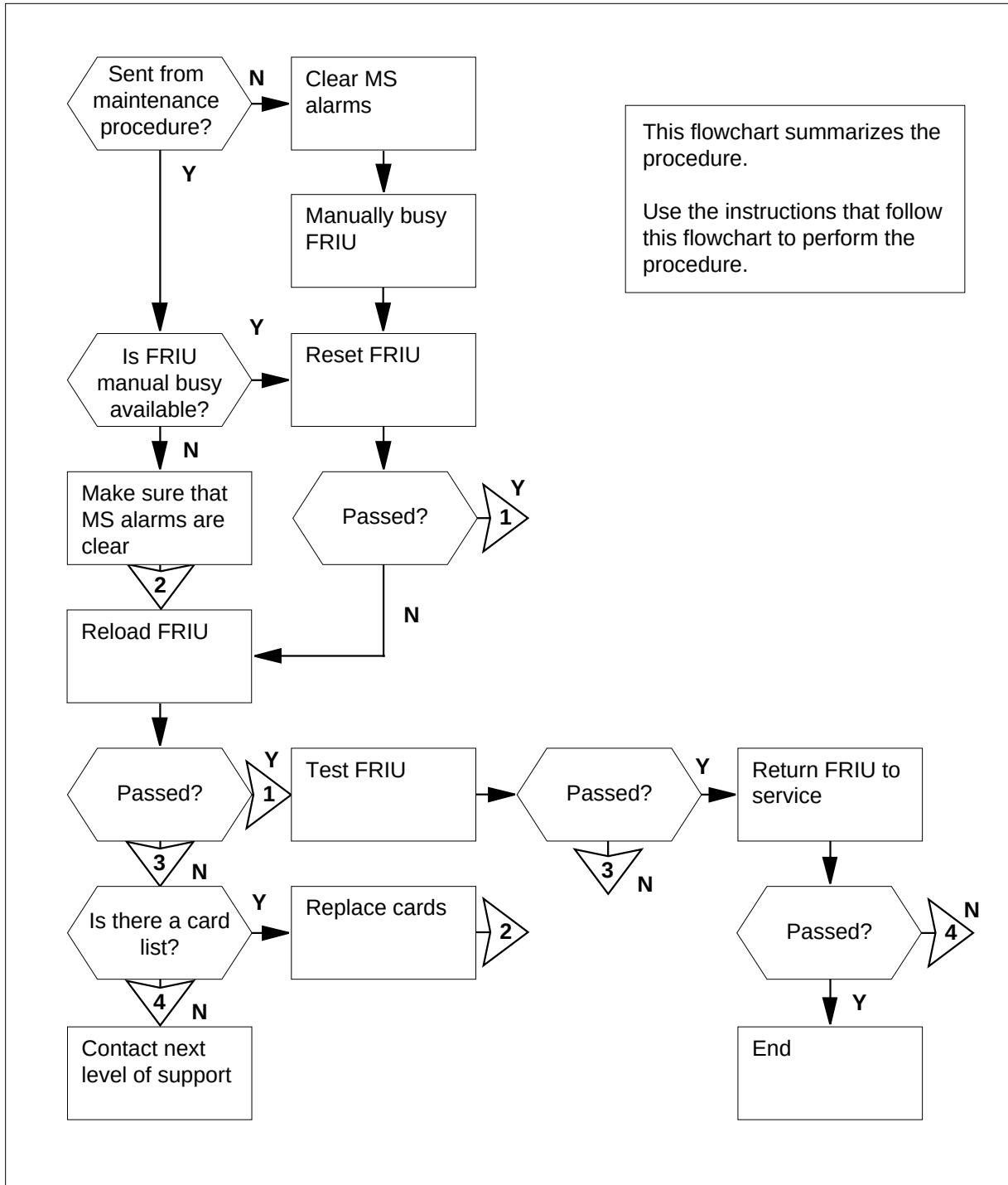
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FRIU critical (on an SSLPP) (continued)

Summary of Clearing a PM FRIU critical alarm (on an SSLPP)



PM FRIU critical (on an SSLPP) (continued)

Clearing a PM FRIU alarm

At the MAP display

- 1 Determine your next step.

If you	Do
came to this procedure from another maintenance procedure	step 7
came to this procedure from other than listed here	step 2

- 2 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	0	0	0	0	71

- 3 To display the system busy FRIUs, type
>POST FRIU SYSB
and press the Enter key.

Example of a MAP display:

FRIU	121	SysB	Rsvd

If the MAP response	Do
indicates a SysB or SysB (NA) FRIU	step 7
indicates End of posted set	step 4

- 4 To check if in service trouble not available FRIUs are present, display the in service trouble FRIUs. To display the in service trouble FRIUs, type

>POST FRIU ISTB

and press the Enter key.

Example of a MAP display:

FRIU	121	ISTb (NA)	Rsvd

PM FRIU critical (on an SSLPP) (continued)

Example of a MAP display:

If the MAP response	Do
indicates an ISTb FRIU	step 5
indicates an ISTb (NA) FRIU	step 7
Text CharFormat="Mono">in- dicates End of posted setText>	step 34

- 5 To display the next in service trouble FRIU, type
>NEXT
and press the Enter key.

Example of a MAP display:

FRIU 121 ISTb Rsvd

If the MAP response	Do
indicates an ISTb FRIU	step 6
indicates an ISTb (NA) FRIU	step 7
Text CharFormat="Mono">in- dicates End of posted setText>	step 35

- 6 Repeat step 4 until an in service trouble not available FRIU appears. Repeat step 4 until you reach the end of the posted set.
- 7 To manually busy the FRIU, type
>BSY FORCE
and press the Enter key.

Example of a MAP display:

FRIU carrier will be affected by this mtce action.
Please confirm ("YES", "Y", "NO", or "N"):

- 8 To confirm the command, type
>YES
and press the Enter key.

If the FRIU	Do
is ManB	step 21
is ManB (NA)	step 9

PM FRIU critical (on an SSLPP) (continued)

- 9 Access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card. To access table MSCDINV, type

>TABLE MSCDINV;FORMAT PACK

and press the Enter key.

Example of a MAP response:

```
TABLE MSCDINV
<line length>: 76 columns can be output per line.
<pack mode>: Pack mode is ON.
<indent column>: Indented lines will begin in column 1.
<first column>: The first column of output is column 1
```

- 10 To list all entries in the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

```
MSCDKEY SLOTINFO
-----
0 0 1 TBUSACC NT9X52AA NIL
0 0 2 CLOCK NT9X53AC NT9X54AC
0 0 3 MSP NT9X13DC NT9X26AB
0 0 4 MEMORY NT9X14DB
0 0 5 MAPPER NT9X15AA
0 0 17 DS512 NT9X17AD NT9X62BA 1
```

Note: The example above shows a list that is not complete.

- 11 To determine the card number of the NT9X17AD MS 4-post universal card, use the response in step10.

Note: The card number appears in the third column of the MAP response to the LIST ALL command. In the example in step 10, the NT9X17AD appears on the last line of the listing. The NT9X17AD is card number 17.

- 12 To quit table MSCDINV, type

>QUIT

and press the Enter key.

- 13 To search for MS-related faults that affect the FRIU, access the MS level of the MAP. To access the MS level of the MAP, type

>MS

and press the Enter key.

Example of a MAP response:

```
Message Switch  Clock  Shelf  0      Inter-MS Link 0 1
MS 0      .      M Free      .      . . 2 MS 1      .      Slave
      .      .      .      .
```


PM FRIU critical (on an SSLPP) (continued)

- 14** To access shelf 0, type
>SHELF 0
 and press the Enter key.
Example of a MAP display:

```

MS 0      .      M Free      .      . . 2 MS 1
      .      Slave      .      . . 3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0  . . . . . - - - - - 0 . . . . .
MS 1  . . . . . - - - - - . . . . .

```

- 15** To post the NT9X17AD card identified in step 11, type
>CARD card_no
 and press the Enter key.
where

card_no
 is the number of the card identified in step 11

Example of a MAP response:

```

MS 0      .      M Free      .      . . 2 MS 1
      .      Slave      .      . . 3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0  . . . . . - - - - - 0 . . . . .
MS 1  . . . . . - - - - - . . . . .
Card 17 Protocol Port 0____3
MS 0  .   DS512   4   P - P -
MS 1  .   DS512   4   P - P -

```

- 16** Determine if the NT9X17AD card identified in step 11 has any defects.
Note: Locate the state of the card under the card number that appears on the MAP.

If the card, taps, or F-bus	Do
have defects	step17
do not have defects	step18

- 17** To clear all MS alarms that relate to the NT9X17AD card, perform the correct MS alarm clearing procedure. The procedure is in *Alarm and Performance Monitoring Procedures*. Complete the procedure and return to this point.
- 18** To return to the PM level of the MAP display, type
>PM
 and press the Enter key.

PM FRIU critical (on an SSLPP) (continued)

- 19** To post the FRIU, type
>POST FRIU friu_no
and press the Enter key.
where
friu_no
is the number of the FRIU that you worked on (0 to 500)

Example of a MAP display:

FRIU 121 ManB Rsvd

Go to step 21.

- 20** To reset the FRIU, type
>PMRESET
and press the Enter key.

If the PMRESET command	Do
passed	step 22
failed	step 21

- 21** To load the FRIU, type
>LOADPM
and press the Enter key.

- 22** To test the FRIU, type
>TST
and press the Enter key.

If the TST command	Do
passed	step 33
failed, with a card list that contains NTEX22 as the first card on the list	step 30
failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 27

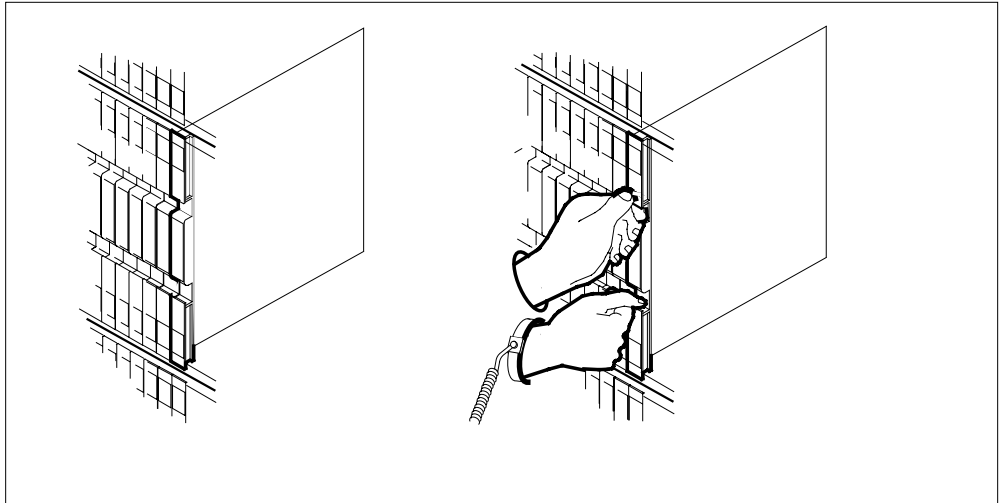
PM FRIU
critical (on an SSLPP) (continued)*At the frame*

23

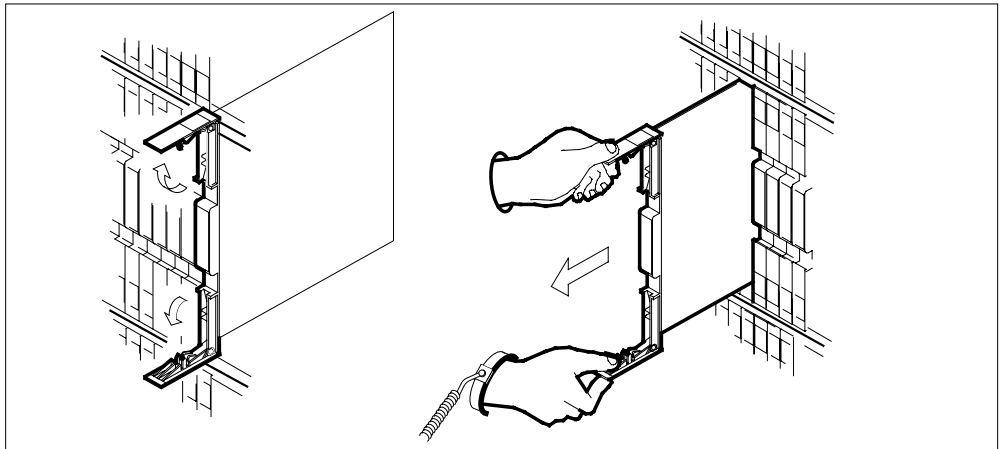
**DANGER****Static electricity damage**

Wear a wrist strap that connects to a wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU that you tested. Seat the three cards for the FRIU again.

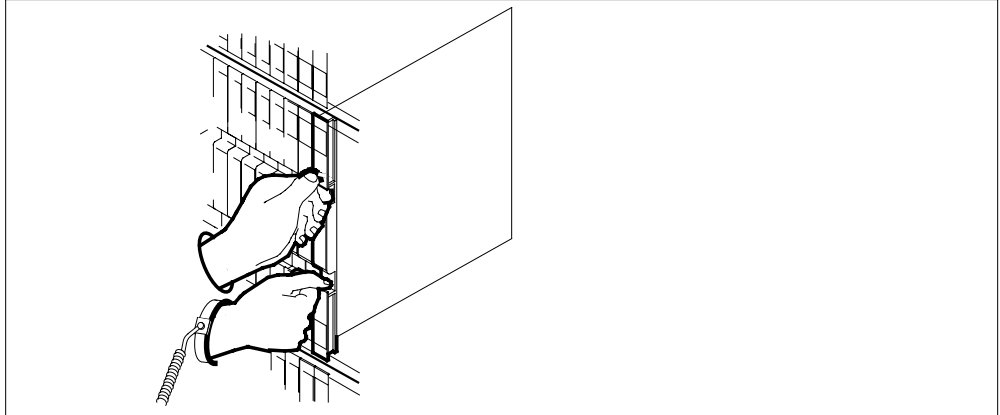


24 Carefully lift the locking levers. Pull the card 25 mm (1 in.) toward you.



PM FRIU critical (on an SSLPP) (continued)

- 25 Seat and lock the card as follows:
- Use finger or thumb pressure to push on the upper and lower edges of the faceplate. Perform this procedure to make sure that the card sits completely in the shelf.
 - Close the locking levers.



- 26 Repeat steps 23 to 25 for the NTEX31 and NTEX30 cards for the FRIU that you tested.
Go to step 21.
- 27 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

If you	Do

did not replace one a minimum of one card on the list with this procedure	step 28

replaced all cards on the list with this procedure	step 34

- 28 Replace the first card on the list that you did not replace as a result of this alarm clearing procedure. To replace the first card, perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 29 Go to step 33.

- 30 Determine if you already replaced the NTEX22 card.

If you	Do

already replaced the NTEX22	step 34

did not replace the NTEX22	step 31

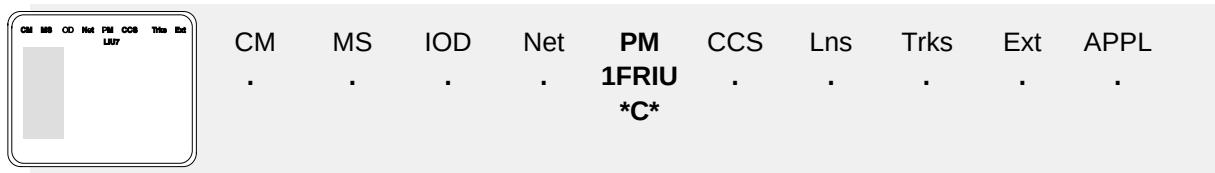
PM FRIU
critical (on an SSLPP) (end)

- 31** To replace the NTEX22 card, perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 32** Go to step 33.
- 33** To turn the FRIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 35
failed	step 34

- 34** For additional help, contact the next level of support.
- 35** The procedure is complete.

PM FRIU major on an SSLPP



Indication

At the MTC level of the MAP display, FRIU (preceded by a number) appears under the PM header of the alarm banner. The FRIU indicates a major alarm for a frame relay interface unit (FRIU).

Meaning

A minimum of one FRIU is manual busy or manual busy not available for one of the following reasons:

- for maintenance purposes
- for maintenance purposes, and the FRIU does not respond to the computing module (CM)

The number under the PM header of the alarm banner indicates the number of FRIUs affected.

Result

The indicated number of FRIUs are out of service. The DS-1 channels associated with the FRIUs cannot carry traffic.

Common procedures

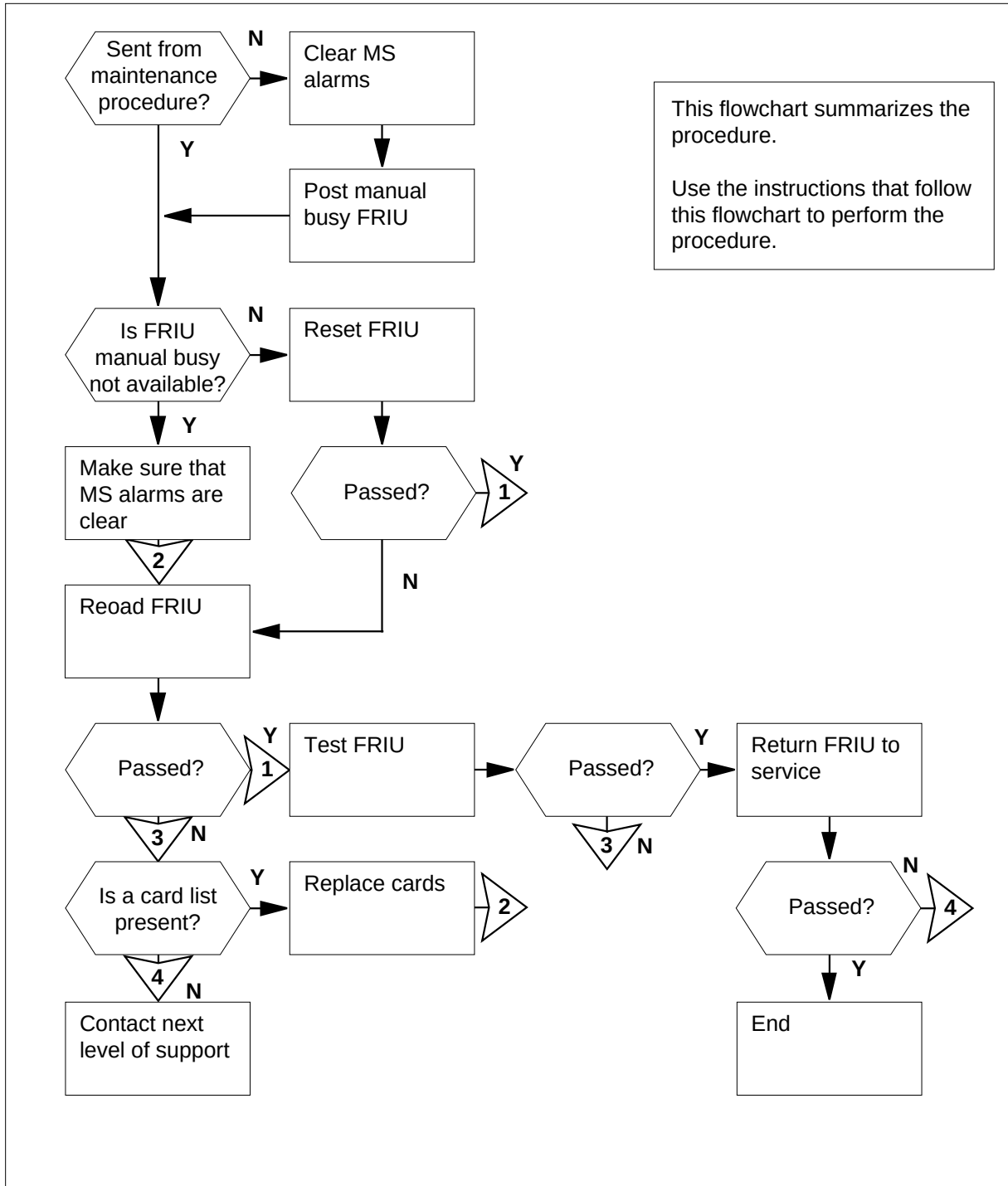
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FRIU major on an SSLPP (continued)

Summary of clearing a PM FRIU critical alarm (on an SLPP)



PM FRIU major on an SSLPP (continued)

Clearing a PM FRIU alarm

At the MAP terminal

- 1 Determine your next step.

If you came to this procedure from another maintenance procedure and the posted FRIU	Do
is ManB (NA)	step 4
is ManB	step 16
is other than listed here	step 2

- 2 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP display:

SysB	ManB	OffL	CBsy	ISTb	InSv
PM 0	1	0	0	0	71

- 3 To display the system busy FRIUs, type
>POST FRIU MANB
and press the Enter key.

Example of a MAP display:

FRIU	121	ManB	Rsvd

Example of a MAP display:

If the MAP response	Do
indicates the FRIU is ManB	step 16
indicates the FRIU is ManB (NA)	step 4
indicates End of posted set	step 29

- 4 To access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card, type
>TABLE MSCDINV;FORMAT PACK
and press the Enter key.

Example of a MAP response:

PM FRIU major on an SSLPP (continued)

TABLE MSCDINV

<line length>: 76 columns can be output per line.

<pack mode>: Pack mode is ON.

<indent column>: Indented lines will begin in column 1.

<first column>: The first column of output is column 1

- 5 To list all entries in the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

MSCDKEY SLOTINFO

```
-----
0 0 1 TBUSACC NT9X52AA NIL
0 0 2 CLOCK NT9X53AC NT9X54AC
0 0 3 MSP NT9X13DC NT9X26AB
0 0 4 MEMORY NT9X14DB
0 0 5 MAPPER NT9X15AA
0 0 17 DS512 NT9X17AD NT9X62BA 1
```

Note: The preceding example shows part of a list.

- 6 Use the response you obtained in step 10 to determine the card number of the NT9X17AD MS 4-post universal card.

Note: The card number appears in the third column of the MAP response to the LIST ALL command. In step 10, the NT9X17AD appears on the last line of the listing and is card number 17.

- 7 To quit table MSCDINV, type

>QUIT

and press the Enter key.

- 8 To access the MS level of the MAP display to begin the search for MS-related faults that affect the FRIU, type

>MS

and press the Enter key.

Example of a MAP display:

Message Switch	Clock	Shelf	0	Inter-MS Link	0	1	
MS 0	.	M Free	.	.	2	MS 1	Slave
.		.	.	.			

- 9 To access shelf 0, type

>SHELF 0

and press the Enter key.

Example of a MAP display:

PM FRIU major on an SSLPP (continued)

```

MS 0      .      M Free      .      .      2 MS 1
      .      Slave      .      .      3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .

```

- 10** To post the NT9X17AD card you identified in step 1, type

>CARD card_no

and press the Enter key.

where

card_no

is the number of the card you identified in step 11

Example of a MAP display:

```

MS 0      .      M Free      .      .      2 MS 1
      .      Slave      .      .      3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .
Card 17 Protocol Port 0____3
MS 0      . DS512 4 P - P -
MS 1      . DS512 4 P - P -

```

- 11** Determine if the NT9X17AD card you identified in step 11 has faults.

Note: Locate the state of the card under the card number shown on the MAP display.

If the card, taps or F-bus	Do
have faults	step 12
do not have faults	step 13

- 12** Make sure that the alarms you identified in step 11 are clear. Perform the correct MS procedure in *Alarm and Performance Monitoring Procedures* to clear the alarms. Complete the procedure and return to this point.

- 13** To return to the PM level of the MAP display, type

>PM

and press the Enter key.

- 14** To post the FRIU, type

>POST FRIU friu_no

and press the Enter key.

where

PM FRIU major on an SSLPP (continued)

friu_no

is the number of the FRIU(0 to 500)

Example of a MAP response:

FRIU 121 ManB Rsvd

Go to step16.

- 15** To reset the FRIU, type
>PMRESET
 and press the Enter key.

If the PMRESET command	Do
passed	step 17
failed	step 16

- 16** To load the FRIU, type
>LOADPM
 and press the Enter key.

- 17** To test the FRIU, type
>TST
 and press the Enter key.

If the TST command	Do
passed	step 28
failed, with a card list that contains NTEX22 as the first card on the list	step 25
failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 22

PM FRIU major on an SSLPP (continued)

At the frame

18

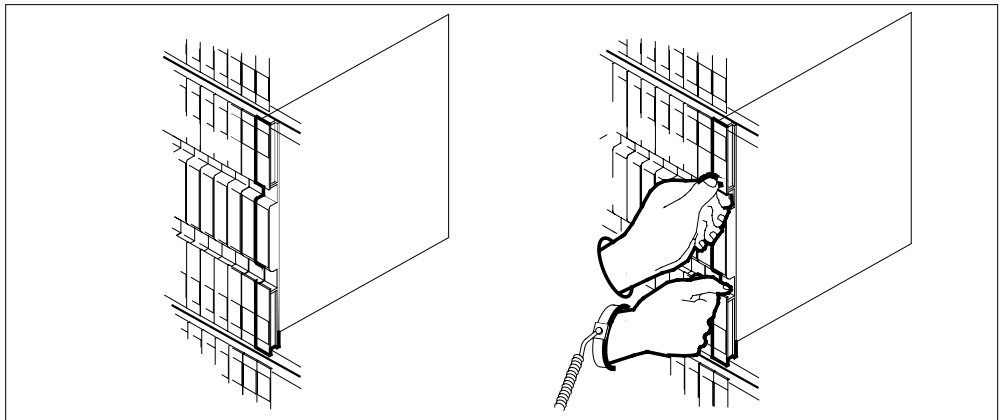


WARNING

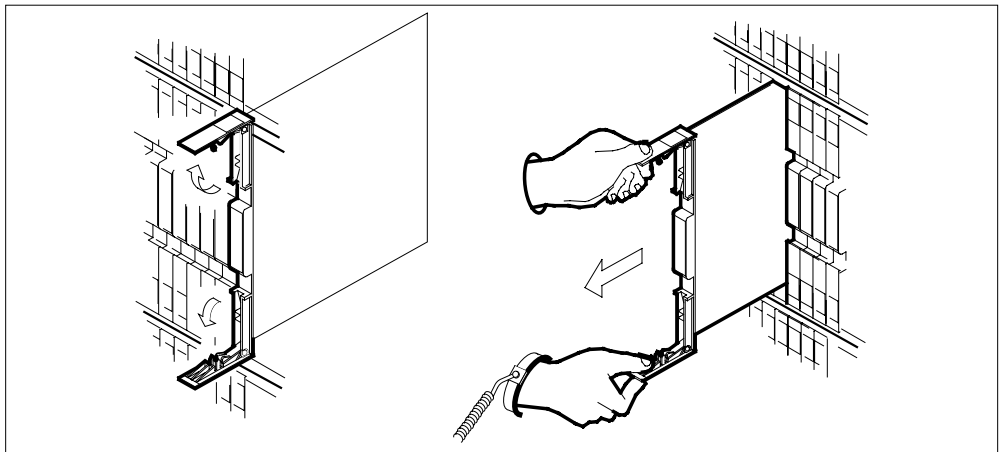
Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The grounding point is on a frame supervisory panel (FSP). The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



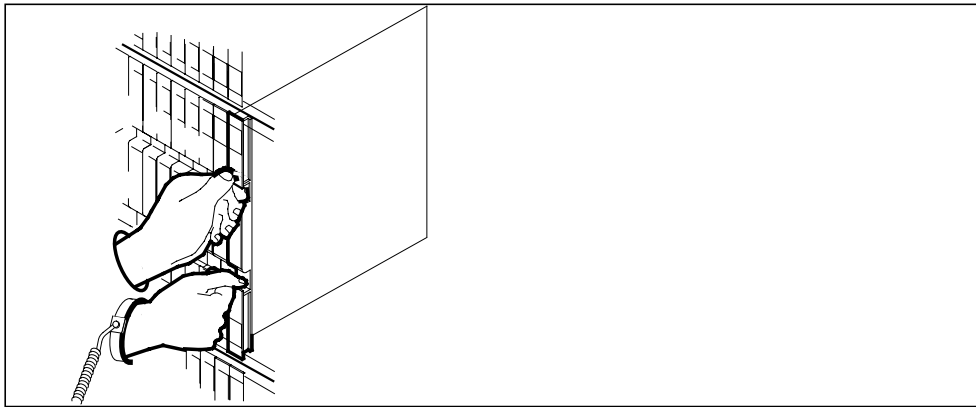
19 Lift the locking levers. Pull the card toward you 25 mm (1 in.).



20 Seat and lock the card as follows:

PM FRIU major on an SSLPP (continued)

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
- b Close the locking levers.



- 21 Repeat steps 18 to 20 for the NTEX31 and NTEX30 card for the FRIU. Go to step 16.
- 22 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

If you	Do
do not use this procedure to replace a minimum of one card on the list	step 23
use this procedure to replace all cards on the list	step 29

- 23 Replace the first card on the list that you did not replace as a result of this alarm. Perform the correct procedure in *Card Replacement Procedures* to clear the alarm. Complete the procedure and return to this point.
- 24 Go to step 15.
- 25 Determine if replacement of the NTEX22 card occurred.

If the replacement of the NTEX22 card	Do
occured	step 29
did not occur	step 26

- 26 Perform the correct procedure in *Card Replacement Procedures* to replace the NTEX22 card. Complete the procedure and return to this point.
- 27 Go to step 16.

PM FRIU major on an SSLPP (end)

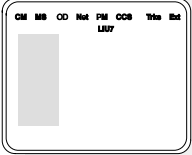
- 28** To return the FRIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 30
failed	step 29

- 29** For additional help, contact the next level of support.
30 The procedure is complete.

PM FRIU minor (on an SSLPP)

Alarm Display

	CM	MS	IOD	Net	PM 1FRIU	Lns	Trks	Ext	APPL
	.	.	.	.		.	.	.	.

Indication

At the MTC level of the MAP display, FRIU (preceded by a number) appears under the PM header of the alarm banner. The FRIU indicates a minor alarm for a frame relay interface unit (FRIU).

Meaning

A minimum of one FRIU is in-service trouble for one of the following reasons:

- run and default load names do not match
- one tap is out of service
- one message switch (MS) unit is out of service
- one F-bus is out of service

The number under the PM header of the alarm banner indicates the number of affected FRIUs.

Result

The FRIUs with in-service trouble continue to function. The trouble does not affect traffic on the DS-1 channels associated with the FRIUs.

Common procedures

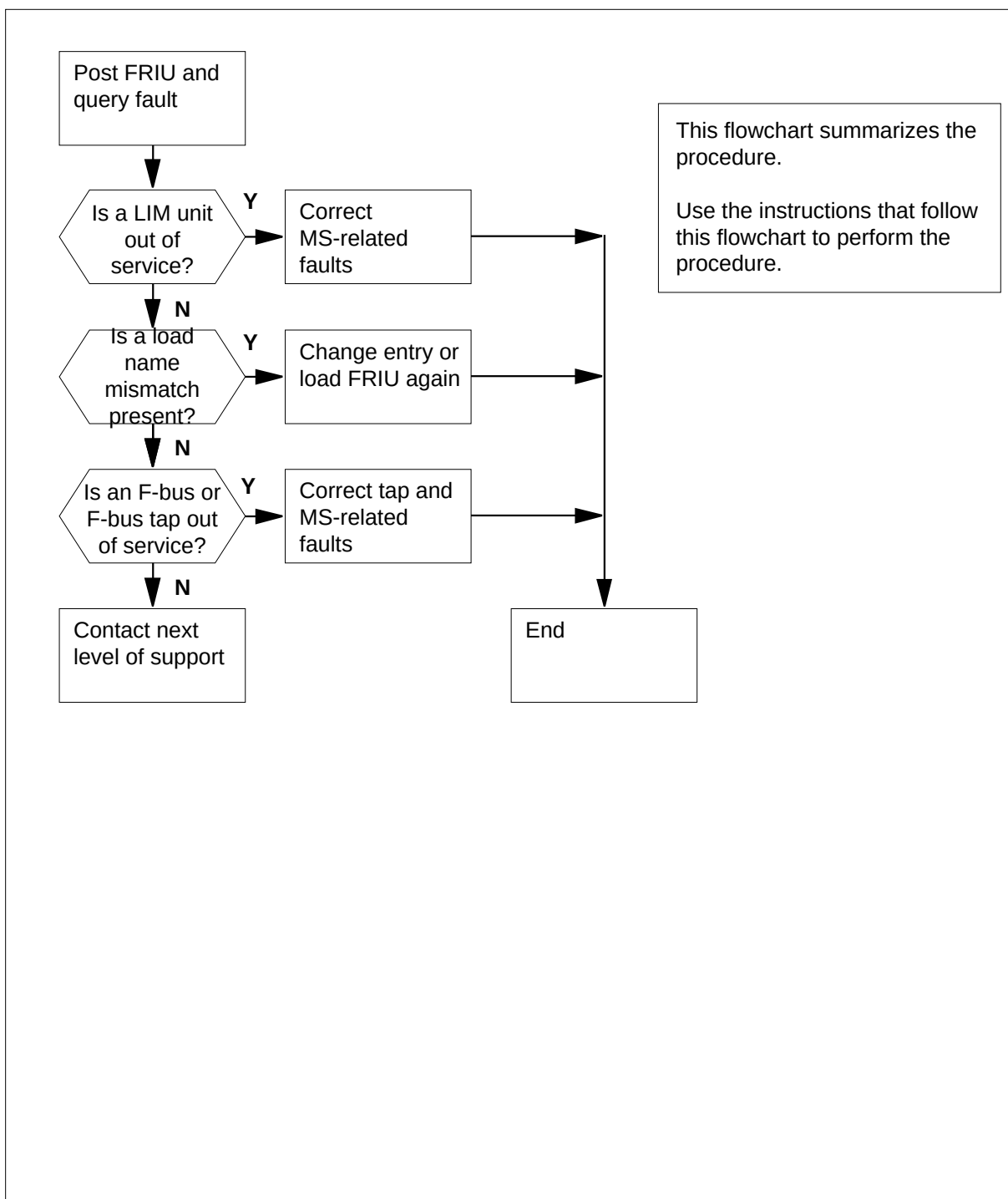
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FRIU minor (on an SSLPP) (continued)

Summary of clearing a PM FRIU minor alarm (on an SSLPP)



PM FRIU minor (on an SSLPP) (continued)

Clearing a PM FRIU alarm

At the MAP terminal

- 1 Determine your next step.

If you	Do
came to this procedure from another maintenance procedure	step 4
came to this procedure from another position	step 2

At the MAP terminal

- 2



WARNING

Possible service-affecting action

Removal of an FRIU from service can be a requirement to complete the following procedure. When you take an FRIU out of service, loss of service can occur on the associated access or trunking DS-1 channels. When instructed, manually busy an FRIU during a period of low traffic.

To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	0	0	0	2	72

- 3 To post in-service trouble FRIUs, type

>POST FRIU ISTB

and press the Enter key.

Example of a MAP display:

FRIU	121	ISTb	Rsvd

- 4 To query the FRIU to determine the type of the fault, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

PM FRIU minor (on an SSLPP) (continued)

```
FRIU FTA:  427E 1000
MS Shelf: 1 Slot: 24
Default Load: F8X36CJ
Running Load: F8X36CJ
ISTB conditions:
    Msg Channel #0 NA
    TAP #0 OOS/NA
Carrier is currently OffL.
Carrier Alarm: -----.
MS States:      InSv          InSv
Auditing?:      No           Yes
Msg Channels:   NA           Acc
TAPs:           B            .
```

- 5 Determine the fault reason for the posted FRIU from the response you obtained in step 4.

To obtain another query result when the response clears from the MAP display, type

>QUERYPM

and press the Enter key.

Note: The fault reason appears under the ISTb Conditions header in the response.

If the fault reason	Do
is Msg Channel #x NATAP #x OOS/NAHost Unit x is not inservice	step 6
is Loadname mismatch	step 17
is Msg Channel #x NATAP #x OOS/NA	step 6
switches repeatedly between more than one of the above reasons	step 39

- 6 To access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card, type

>TABLE MSCDINV;FORMAT PACK

and press the Enter key.

Example of a MAP response:

```
TABLE MSCDINV
<line length>:  76 columns can be output per line.
<pack mode>:    Pack mode is ON.
<indent column>: Indented lines will begin in column 1.
<first column>: The first column of output is column 1
```

PM FRIU minor (on an SSLPP) (continued)

- 7 To list all entries in the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

MSCDKEY SLOTINFO

```
0 0 1 TBUSACC NT9X52AA NIL
0 0 2 CLOCK NT9X53AC NT9X54AC
0 0 3 MSP NT9X13DC NT9X26AB
0 0 4 MEMORY NT9X14DB
0 0 5 MAPPER NT9X15AA
0 0 17 DS512 NT9X17AD NT9X62BA 1
```

Note: Part of a list appears in the preceding example.

- 8 Use the response you obtained in step 10 to determine the card number of the NT9X17AD MS 4-post universal card.

Note: The card number appears in the third column of the MAP response. The MAP response is a result of the LIST ALL command. In step 10, the NT9X17A appears on the last line of the listing and is card number 17.

- 9 To quit table MSCDINV, type

>QUIT

and press the Enter key.

- 10 To access the MS level of the MAP display to begin the search for MS-related faults that affect the FRIU, type

>MS

and press the Enter key.

Example of a MAP display:

	Message Switch	Clock	Shelf	0	Inter-MS Link	0	1
MS 0	.	M Free	.	.	2	MS	1
	.	Slave	.	.	.		

- 11 To access shelf 0, type

>SHELF 0

and press the Enter key.

Example of a MAP display:

PM FRIU minor (on an SSLPP) (continued)

```

MS 0      .      M Free      .      .      2 MS 1
      .      Slave      .      .      3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .

```

- 12** To post the NT9X17AD card you identified in step 11, type
>CARD card_no
 and press the Enter key.

where

card_no

is the number of the card you identified in step 11

Example of a MAP display:

```

MS 0      .      M Free      .      .      2 MS 1
      .      Slave      .      .      3
Shelf 0      1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .
Card 17 Protocol Port 0____3
MS 0      .      DS512      4      P - P -
MS 1      .      DS512      4      P - P -

```

- 13** Determine if the NT9X17AD card that you identified in step 11 has any faults.

Note: Locate the state of the card under the card number shown on the MAP display.

If the card, taps, or F-bus	Do
have faults	step 14
do not have faults	step 15

- 14** Make sure alarms related to the faults that you identified in step 13 are clear. Perform the correct MS procedure in *Alarm and Performance Monitoring Procedures* to clear the alarms. Complete the procedure and return to this point.

- 15** To return to the PM level of the MAP display, type

>PM

and press the Enter key.

- 16** To post the FRIU, type

>POST FRIU friu_no

and press the Enter key.

PM FRIU minor (on an SSLPP) (continued)

where

friu_no

is the number of the FRIU in use (0 to 500)

Example of a MAP response:

```
FRIU    121  ManB      Rsvd
```

Go to step 36.

- 17** Determine the default load and the running load for the FRIU from the MAP response that you obtained in step 8.

To obtain another query result if the response cleared from the MAP, type

>QUERYPM

and press the Enter key.

Note: The name of the default load appears next to the Default Load header in the MAP response. The name of the running load appears to the right of the Running Load header.

- 18** Determine from office records or operating company personnel the correct name for the load.

Note: You must enter the correct load name in table PMLOADS for this procedure.

If	Do
both the default load name and the running load name do not match the load name you obtained from office records	step 19
only the default load name does not match the load name you obtained from office records	step 19
only the running load name does not match the load name you obtained from office records	step 27

- 19** To access table LIUINV, type

>TABLE LIUINV

and press the Enter key.

Example of a MAP response:

```
TABLE: LIUINV
```

- 20** To position on the datafill for the FRIU, type

>POSITION friu_no

and press the Enter key.

PM FRIU minor (on an SSLPP) (continued)

where

friu_no

is the number of the FRIU that was in use (0 to 500)

Example of a MAP response:

```
FRIU 121    LIM  0 2 12  F8X35CJ          NTEX22BB
                                         NTEX30AA NTEX31BA
```

- 21** To change the load name datafilled for the FRIU to match the name you obtained from office records, type

>CHANGE LOAD

and press the Enter key.

Example of a MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

- 22** To confirm the command, type

>Y

and press the Enter key.

- 23** To enter the correct load name, type

>loadname

and press the Enter key.

where

loadname

is the name of the correct load

Example of a MAP response:

```
TUPLE TO BE CHANGED:
FRIU 121    LIM  0 2 12  F8X36CJ          NTEX22BB
                                         NTEX30AA NTEX31BA
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 24** To confirm the command, type

>Y

and press the Enter key.

- 25** To quit table LIUINV, type

>QUIT

and press the Enter key.

PM FRIU minor (on an SSLPP) (continued)

- 26 Determine if the name of the running load matches the load name you obtained from office records.

If the running load name	Do
does not match the name you obtained from office records	step 27
matches the name you obtained from office records	step 40

- 27 To manually busy the FRIU, type
>BSY FORCE
and press the Enter key.
Go to step 36.

At the frame

28

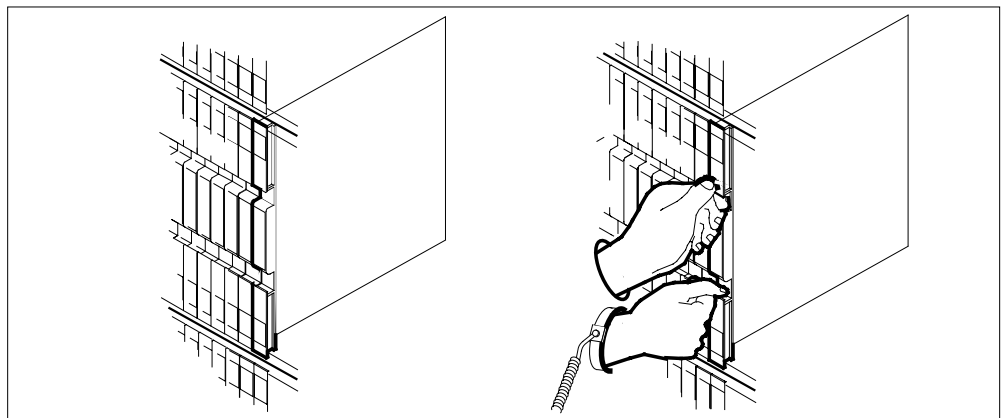


WARNING

Static electricity damage

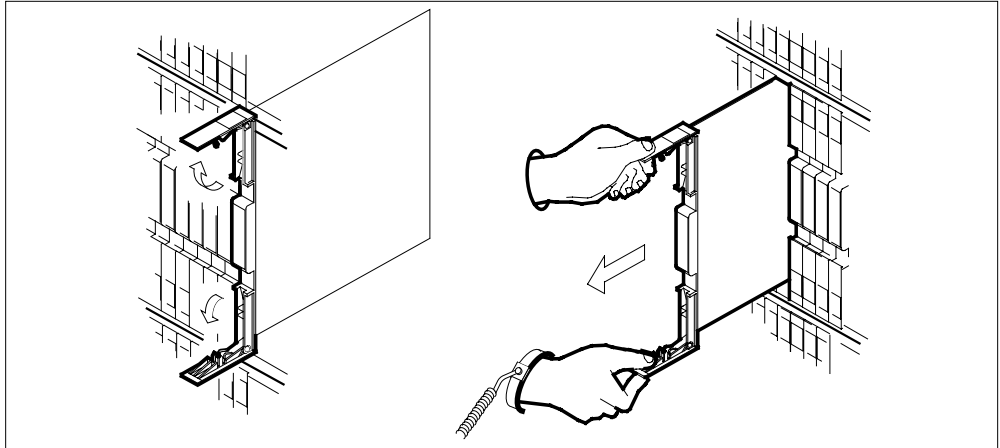
Wear a wrist strap that connects with the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



- 29 Lift the locking levers and pull the card towards you 25 mm (1 in.).

PM FRIU minor (on an SSLPP) (continued)



- 30 Seat and lock the card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - Close the locking levers.
- 31 Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU. Go to step 36.
- 32 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.
- 33 To post the FRIU, type
>PM;POST FRIU friu_no
and press the Enter key.
where
friu_no
is the number of the FRIU (0 to 500)
Example of a MAP display:
- | | | | |
|------|-----|------|------|
| FRIU | 121 | ISTb | Rsvd |
|------|-----|------|------|
- 34 To manually busy the FRIU, type
>BSY FORCE
and press the Enter key.
- 35 Replace the first card on the list that you did not replace as a result of this alarm procedure. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 36 To load the FRIU, type
>LOADPM

PM FRIU minor (on an SSLPP) (end)

and press the Enter key.

If the LOADPM command	Do
passed	step 37
failed, with no card list and you replaced all cards	step 39
failed, with no card list and you did not put in correct position all cards	step 28
failed, with a card list and you did not replace a minimum of one card on the list	step 35
failed, with a card list and you replaced all cards on the list	step 39

- 37** To test the FRIU, type
>TST
and press the Enter key.

If the TST command	Do
passed	step 38
failed, with a card list and you did not replace a minimum of one card on the list	step 35
failed, with a card list and you replaced all cards on the list	step 39

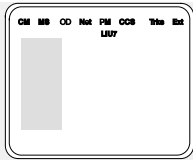
- 38** To return the FRIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 40
failed	step 39

- 39** For additional help, contact the next level of support.
40 The procedure is complete.

PM HLIU critical

Alarm display

	CM	MS	IOD	Net	PM 1HLIU *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.		.	.	.	.	.

Indication

The HLIU alarm indicates a high-speed link interface unit (HLIU) critical alarm. The alarm appears at the MTC level of the MAP display under the PM header of the alarm banner. The alarm consists of a number followed by HLIU. The number indicates the number of affected HLIUs.

Meaning

One or more HLIUs are system busy (SysB) or system busy not accessible. The service maintenance system attempts to recover the HLIUs automatically.

This alarm may be caused by a hardware fault. If a hardware fault exists, operating company personnel must replace the faulty cards.

Impact

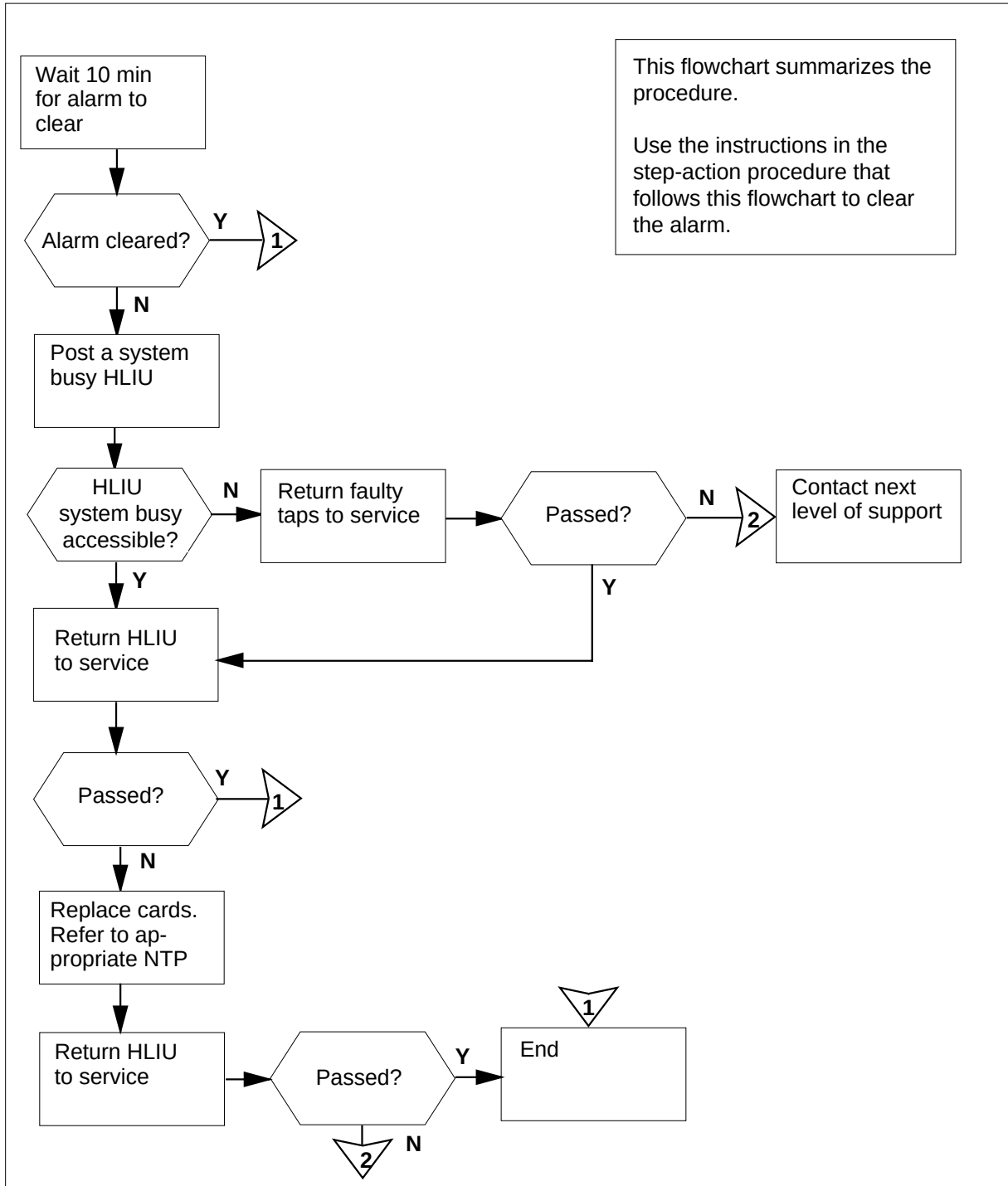
HLIUs and their associated signaling links are out of service.

Common procedures

Activating CCS7 links is referenced in this procedure.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM HLIU critical (continued)**Summary of clearing a PM HLIU critical alarm**

PM HLIU critical (continued)

Clearing a PM HLIU critical alarm

At the MAP terminal

1

**CAUTION****Possible service-affecting action**

Do not POST, RTS, and LOAD multiple sets of HLIUs. Finish working on one set of HLIUs before working on another set.

The system will automatically attempt to reload the system-busy HLIUs and return them to service. Monitor PM181 logs to determine if the system has attempted three autorecovery attempts.

Note: After three unsuccessful autorecovery attempts, a forced autoloading pending maintenance flag will appear for the posted HLIU. When the system is in a forced autoloading pending state, approximately 5 min will elapse before another autorecovery attempt is performed.

If PM181 logs indicate		Do
an HLIU has failed three autorecovery attempts and is in a forced autoloading pending state		step 2
the system-busy HLIUs have successfully recovered automatically		step 55
2	Determine if all the MS alarms have been cleared.	
If the MS alarm		Do
cleared		step 4
did not clear		step 3
3	Perform the appropriate MS alarm clearing procedure in this document. When you have completed the procedure, return to this point.	
4	Determine if the HLIU critical alarm cleared.	
If the HLIU alarm		Do
cleared		step 55
did not clear		step 5

PM HLIU critical (continued)

- 5 Access the PM level of the MAP display by typing
>MAPCI;MTC;PM
 and pressing the Enter key.
- 6 Display all system-busy HLIUs by typing
>DISP STATE SYSB HLIU
 and pressing the Enter key.
- 7 Post the first system-busy HLIU on the list by typing
>POST HLIU liu_no
 and pressing the Enter key.
where
 liu_no
 is the number of the selected HLIU (0 to 511)
- 8 Determine the state of the posted HLIU.

If the state of the posted HLIU is	Do
SysB (NA)	step 9
SysB	step 39
- 9 Determine if there is an FSP alarm under the EXT header of the MAP display.

If an FSP alarm is	Do
present	step 10
not present	step 11
- 10 Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 11 Determine if a service-affecting condition is present by typing
>QUERYPM
 and pressing the Enter key.
Note: In the example, service-affecting conditions appear under the heading *Potential service affecting conditions*.
Example of a MAP response:

PM HLIU critical (continued)

```

PM type:HLIU      PM No.:110  Status: SysB(NA)
LIM: 1  Shelf:2  Slot: 12  LIU FTA:4249 1000
Default Load: HCA04CX
Running Load: HCA04CX
Potential service affecting conditions:
  Msg Channel #0 NA
  Msg Channel #1 NA
  TAP #0 OOS/NA
  TAP #1 OOS/NA
LMS States:      InSv      InSv
Auditing :       No       No
Msg Channels:    NA       NA
TAP 2 :          S(NA)    M(NA)
Reserved HLIU forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated

```

- 12** Determine the number of the link interface module (LIM), link interface shelf (LIS), and tap and the name of the linkset associated with the HLIU.

Note: The numbers of the LIM and LIS associated with the HLIU appear in the second line of the MAP response. The number of the tap and linkset name associated with the HLIU appear at the bottom of the MAP response.

- 13** Post the LIM associated with the HLIU by typing

>POST LIM lim_no

and pressing the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP display:

```

LIM  1 ISTb      00S      00S_Taps
          Links LIS1 LIS2 LIS3
Unit0: ISTb      2        .    .    .
Unit1: ManB      2        8    8    8

```

- 14** Determine the state of the LIM.

If the LIM is	Do
InSv or ISTb and the LIM is located on the link peripheral processor (LPP)	step 17
InSv or ISTb and the LIM is located on the enhanced LPP (ELPP)	step 18

PM HLIU critical (continued)

	If the LIM is	Do
	anything else	step 15
- 15** A problem with the LIM produces a PM LIM alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 16** Determine if the HLIU alarm cleared.
- | | If the HLIU alarm | Do |
|--|--------------------------|-----------|
| | cleared | step 55 |
| | did not clear | step 18 |
- 17** Access the FBus level of the MAP display by typing
>FBUS
and pressing the Enter key.
Example of a MAP display:
- ```

LIM 0 InSv
Unit0: InSv Links_00S Taps_00S
Unit1: InSv 2 .
Tap: 0 4 8 12 16 20 24
FBus0: ManB --BB --BB --BB
FBus1: InSv --IM ---S ----

```
- Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.
- Go to step 19.
- 18** Access the LIS level of the MAP display by typing  
**>LIS lis\_no**  
and pressing the Enter key.  
*where*  
**lis\_no**  
is the number of the LIS that corresponds to the LIS number in step 12.  
*Example of a MAP display:*

**PM HLIU critical** (continued)

```

LIM 8 InSv OOS OOS_Taps
 Links LIS1 LIS2 LIS3
Unit0: InSv 2 . . .
Unit1: InSv 2 . . .
LIS1 1 Tap: 0 4 8
FBus0: ManB --BB --BB --BB
FBus1: InSv --IM ---S ----

```

**Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

- 19** Determine the state of the F-buses.

| If the F-buses are both | Do      |
|-------------------------|---------|
| InSv or ISTb            | step 22 |
| anything else           | step 20 |

- 20** A problem with the F-bus produces a PM LIMF alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.

- 21** Determine if the HLIU alarm cleared.

| If the HLIU alarm | Do      |
|-------------------|---------|
| cleared           | step 55 |
| did not clear     | step 22 |

- 22** Determine which F-bus taps are associated with the HLIU by typing

**>TRNSL fbus\_no**

and pressing the Enter key.

where

**fbus\_no**

is the number of either F-bus (0 or 1)

*Example of a MAP response:*

```

LIM 8 LIS 2 FBus 0 Tap 0 is on HLIU 101
LIM 8 LIS 2 FBus 0 Tap 1 is on HSLR 101
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 102
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 102

```



**PM HLIU critical** (continued)

- 23** From the MAP display generated in step 18, determine the state of the F-bus taps associated with the system-busy HLIU.

**Note:** The tap number shown in the MAP response in step 22 applies to both F-buses.

| <b>If the state of</b>                               | <b>Do</b> |
|------------------------------------------------------|-----------|
| either F-bus tap is fluctuating from I to S, or is S | step 28   |
| either F-bus tap is M                                | step 24   |
| both taps are in service                             | step 54   |

- 24** Determine from office records or other office personnel why the tap was taken out of service. When permitted, go to step 25.

- 25** Return the F-bus tap to service by typing

**>RTS FBUS fbus\_no tap\_no**

and pressing the Enter key.

where

**fbus\_no**  
is the number of the F-bus (0 or 1)

**tap\_no**  
is the number of the F-bus tap (0 to 11)

| <b>If the RTS command</b>               | <b>Do</b> |
|-----------------------------------------|-----------|
| passed, and the other tap is M          | step 23   |
| passed, and the other tap is in service | step 26   |
| failed                                  | step 54   |

- 26** Quit from the LIS level of the MAP display by typing

**>QUIT**

and pressing the Enter key.

- 27** Determine if the HLIU alarm cleared.

| <b>If the HLIU alarm</b> | <b>Do</b> |
|--------------------------|-----------|
| cleared                  | step 55   |
| did not clear            | step 36   |

- 28** Manually busy the tap on F-bus 0 by typing

**>BSY FBUS 0 tap\_no**

and pressing the Enter key.

**PM HLIU critical** (continued)

---

where

**tap\_no**  
is the number of the F-bus tap (0 to 11)

---

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 30 |
| failed             | step 29 |

---

- 29** Force the F-bus tap to busy by typing  
**>BSY FBUS 0 tap\_no FORCE**  
and pressing the Enter key.

where

**tap\_no**  
is the number of the F-bus tap (0 to 11)

- 30** Manually busy the tap on F-bus 1 by typing  
**>BSY FBUS 1 tap\_no**  
and pressing the Enter key.

where

**tap\_no**  
is the number of the F-bus tap (0 to 11)

---

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 32 |
| failed             | step 31 |

---

- 31** Force the F-bus tap to busy by typing  
**>BSY FBUS 1 tap\_no FORCE**  
and pressing the Enter key.

where

**tap\_no**  
is the number of the F-bus tap (0 to 11)

- 32** Replace the NTEX22CA card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

- 33** Return the tap on F-bus 0 to service by typing  
**>RTS FBUS 0 tap\_no**  
and pressing the Enter key.

where

**PM HLIU critical** (continued)

| <b>tap_no</b><br>is the number of the F-bus tap (0 to 11) |                                                                                                                                                                                            |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If the RTS command                                        | Do                                                                                                                                                                                         |
| passed                                                    | step 34                                                                                                                                                                                    |
| failed                                                    | step 54                                                                                                                                                                                    |
| <b>34</b>                                                 | Return the tap on F-bus 1 to service by typing<br><b>&gt;RTS FBUS 1 tap_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>tap_no</b><br>is the number of the F-bus tap (0 to 11) |
| If the RTS command                                        | Do                                                                                                                                                                                         |
| passed                                                    | step 35                                                                                                                                                                                    |
| failed                                                    | step 54                                                                                                                                                                                    |
| <b>35</b>                                                 | Quit from the F-bus level of the MAP display by typing<br><b>&gt;QUIT</b><br>and pressing the Enter key.                                                                                   |
| <b>36</b>                                                 | Post the system busy HLIU by typing<br><b>&gt;POST HLIU liu_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>liu_no</b><br>is the number of the HLIU (0 to 511)                 |
| <b>37</b>                                                 | Manually busy the HLIU by typing<br><b>&gt;BSY</b><br>and pressing the Enter key.                                                                                                          |
| If the response is                                        | Do                                                                                                                                                                                         |
| HLIU liu_no BSY Passed                                    | step 41                                                                                                                                                                                    |

**PM HLIU critical** (continued)

|           | If the response is                                                                                                          | Do      |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|---------|
|           | Busying HLIU liu_no<br>will take a CCS7<br>resource out of ser-<br>vice<br>Please confirm<br>("YES", "Y", "NO", or<br>"N"): | step 38 |
|           | Anything else (apart from<br>"failed"), including additional<br>messages with above response                                | step 54 |
|           | HLIU liu_no BSY Failed                                                                                                      | step 39 |
| <b>38</b> | Confirm the command by typing<br><b>&gt;YES</b><br>and pressing the Enter key.<br>Go to step 41                             |         |
| <b>39</b> | Force the HLIU to busy by typing<br><b>&gt;BSY FORCE</b><br>and pressing the Enter key.                                     |         |
|           | If the response is                                                                                                          | Do      |
|           | HLIU liu_no BSY Passed                                                                                                      | step 40 |
|           | Busying HLIU liu_no<br>will take a CCS7<br>resource out of ser-<br>vice Please confirm<br>("YES", "Y", "NO", or<br>"N"):    | step 40 |
|           | Anything else, including addi-<br>tional messages with above re-<br>sponse                                                  | step 54 |
| <b>40</b> | Confirm the command by typing<br><b>&gt;YES</b><br>and pressing the Enter key.                                              |         |
| <b>41</b> | Reset the HLIU by typing<br><b>&gt;PMRESET</b>                                                                              |         |

**PM HLIU critical** (continued)

and pressing the Enter key.

|           | <b>If the PMRESET command</b>                                                                                                                                                    | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                           | step 43   |
|           | failed                                                                                                                                                                           | step 42   |
| <b>42</b> | Load the HLIU by typing<br><b>&gt;LOADPM</b><br>and pressing the Enter key.                                                                                                      |           |
| <b>43</b> | Test the HLIU by typing<br><b>&gt;TST</b><br>and pressing the Enter key.                                                                                                         |           |
|           | <b>If the TST command</b>                                                                                                                                                        | <b>Do</b> |
|           | passed                                                                                                                                                                           | step 46   |
|           | failed, and a card list is generated that contains cards that have not already been changed                                                                                      | step 44   |
|           | anything else                                                                                                                                                                    | step 54   |
| <b>44</b> | Record the location, description, slot number, and the product engineering code (PEC), including suffix, of the first card on the list.                                          |           |
| <b>45</b> | Replace the card by performing the appropriate card replacement procedure in <i>Card Replacement Procedures</i> . When you have completed the procedure, go to step 37.          |           |
| <b>46</b> | Return the HLIU to service by typing<br><b>&gt;RTS</b><br>and pressing the Enter key.                                                                                            |           |
|           | <b>If the RTS command</b>                                                                                                                                                        | <b>Do</b> |
|           | passed                                                                                                                                                                           | step 47   |
|           | failed                                                                                                                                                                           | step 54   |
| <b>47</b> | Access the C7LKSET level of the MAP display to determine whether the CCS7 link on the HLIU is in service by typing<br><b>&gt;CCS;CCS7;C7LKSET</b><br>and pressing the Enter key. |           |
| <b>48</b> | Post the linkset associated with the HLIU by typing<br><b>&gt;POST C linkset_name</b><br>and pressing the Enter key.                                                             |           |

**PM HLIU critical** (continued)

---

where

**linkset\_name**

is the linkset name

*Example of a MAP display:*

```
Linkset TR000002 InSv
 Traf Sync
LK Stat Stat Resource Stat Physical Access
1 InSv Sync DLIU 8 InSv DS1
2 InSv Sync DLIU 7 InSv DS1
```

- 49** Determine the traffic state of the CCS7 link for the HLIU you are working on.

**Note:** The number of the HLIU you are working on is shown under the Resource header on the MAP display. The traffic state of the CCS7 link is shown under the Traf Stat header.

---

| If the state of the CCS7 link is | Do      |
|----------------------------------|---------|
| InSv                             | step 55 |
| anything else                    | step 50 |

---

- 50** Wait 8 min to see if the CCS7 link recovers when the HLIU re-establishes itself.

---

| If the state of the link is | Do      |
|-----------------------------|---------|
| InSv                        | step 55 |
| anything else               | step 51 |

---

- 51** Perform the procedure *Activating CCS7 links* in this document. When you have completed the procedure, return to this point.

- 52** Determine if the link activated.

---

| If the link activation | Do      |
|------------------------|---------|
| passed                 | step 53 |
| failed                 | step 54 |

---

- 53** Determine if the HLIU alarm cleared.

---

| If the alarm                                                   | Do      |
|----------------------------------------------------------------|---------|
| cleared                                                        | step 55 |
| decreased in number (for example, changed from 2HLIU to 1HLIU) | step 5  |

---

---

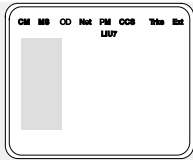
**PM HLIU critical** (end)

---

|           | <b>If the alarm</b>                                                                      | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------|-----------|
|           | did not clear                                                                            | step 54   |
| <b>54</b> | For further assistance, contact the personnel responsible for the next level of support. |           |
| <b>55</b> | You have completed this procedure.                                                       |           |

PM HSLR critical

Alarm display

|                                                                                   |    |    |     |     |       |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | PM    | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | 1HSLR | .   | .   | .    | .   | .    |
|                                                                                   |    |    |     |     | *C*   |     |     |      |     |      |

Indication

The HSLR alarm indicates a high-speed link router (HSLR) critical alarm. The alarm appears at the MTC level of the MAP display under the PM header of the alarm banner. The alarm consists of a number followed by HSLR. The number indicates the number of affected HSLRs.

Meaning

One or more HSLRs are system busy (SysB) or system busy not accessible. The service maintenance system attempts to recover the HSLRs automatically.

This alarm may indicate a hardware fault. If a hardware fault exists, operating company personnel must replace the faulty cards.

Impact

HSLRs and their associated signaling links are out of service.

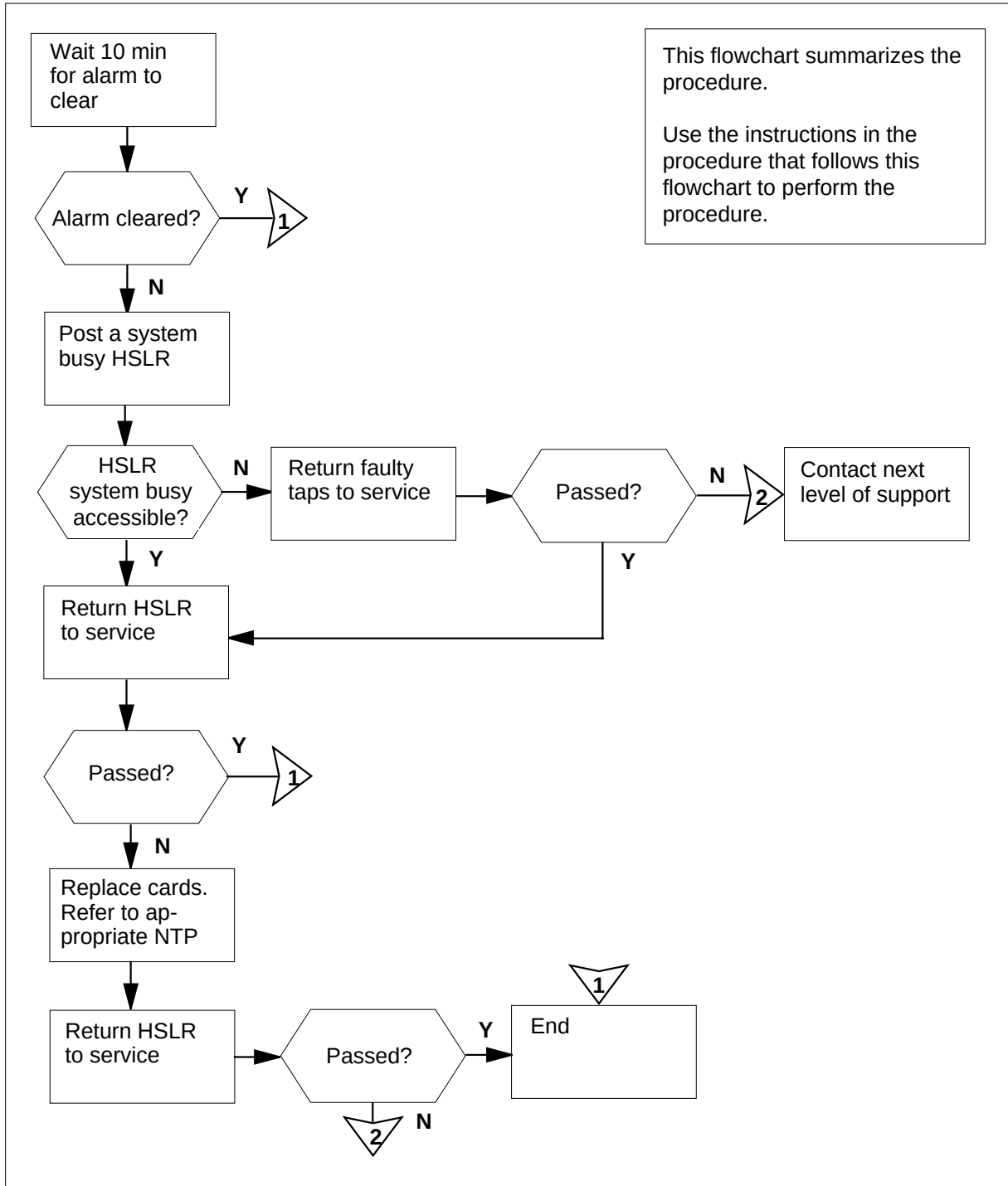
Common procedures

*Activating CCS7 links* is referenced in this procedure.

Action

The following flowchart is only a summary of this procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.



**PM HSLR critical** (continued)**Summary of Clearing a PM HSLR critical alarm**

## PM HSLR critical (continued)

---

### Clearing a PM HSLR critical alarm

#### *At the MAP terminal*

1



#### **CAUTION**

##### **Possible service-affecting action**

Do not POST, RTS, and LOAD multiple sets of HSLRs. Finish working on one set of HSLRs before working on another set.

The system will automatically attempt to reload the system-busy HSLRs and return them to service. Monitor PM181 logs to determine if the system has attempted three autorecovery attempts.

**Note:** After three unsuccessful autorecovery attempts, a forced autoloading pending maintenance flag will appear for the posted HSLR. When the system is in a forced autoloading pending state, approximately 5 min will elapse before another autorecovery attempt is performed.

| <b>If PM181 logs indicate</b>                                                                                                               |  | <b>Do</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------|--|-----------|
| an HSLR has failed three autorecovery attempts and is in a forced autoloading pending state                                                 |  | step 2    |
| the system-busy HSLRs have successfully recovered automatically                                                                             |  | step 55   |
| <hr/>                                                                                                                                       |  |           |
| <b>2</b> Determine if all the MS alarms have been cleared.                                                                                  |  |           |
| <hr/>                                                                                                                                       |  |           |
| <b>If the MS alarm cleared</b>                                                                                                              |  | <b>Do</b> |
| cleared                                                                                                                                     |  | step 4    |
| did not clear                                                                                                                               |  | step 3    |
| <hr/>                                                                                                                                       |  |           |
| <b>3</b> Perform the appropriate MS alarm clearing procedure in this document. When you have completed the procedure, return to this point. |  |           |
| <b>4</b> Determine if the HSLR critical alarm cleared.                                                                                      |  |           |
| <hr/>                                                                                                                                       |  |           |
| <b>If the HSLR alarm</b>                                                                                                                    |  | <b>Do</b> |
| cleared                                                                                                                                     |  | step 55   |
| did not clear                                                                                                                               |  | step 5    |
| <hr/>                                                                                                                                       |  |           |

**PM HSLR critical** (continued)

- 5 Access the PM level of the MAP display by typing  
**>MAPCI;MTC;PM**  
 and pressing the Enter key.
- 6 Display all system-busy HSLRs by typing  
**>DISP STATE SYSB HSLR**  
 and pressing the Enter key.
- 7 Post the first system-busy HSLR on the list by typing  
**>POST HSLR liu\_no**  
 and pressing the Enter key.  
*where*  
     **liu\_no**  
         is the number of the selected HSLR (0 to 511)
- 8 Determine the state of the posted HSLR.  

| If the state of the posted HSLR is |  | Do      |
|------------------------------------|--|---------|
| SysB (NA)                          |  | step 9  |
| SysB                               |  | step 39 |
- 9 Determine if there is an FSP alarm under the EXT header of the MAP display.  

| If an FSP alarm is |  | Do      |
|--------------------|--|---------|
| present            |  | step 10 |
| not present        |  | step 11 |
- 10 Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 11 Determine if a service-affecting condition is present by typing  
**>QUERYPM**  
 and pressing the Enter key.  

**Note:** In the example, service-affecting conditions appear under the heading *Potential service affecting conditions*.

*Example of a MAP response:*

## PM HSLR critical (continued)

```

PM type:HSLR PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
Default Load: HCA04CX
Running Load: HCA04CX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
Reserved HSLR forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated

```

- 12** Determine the number of the link interface module (LIM), link interface shelf (LIS), and tap and the name of the linkset associated with the HSLR.

**Note:** The numbers of the LIM and LIS associated with the HSLR appear in the second line of the MAP response. The number of the tap and linkset name associated with the HSLR appear at the bottom of the MAP response.

- 13** Post the LIM associated with the HSLR by typing

**>POST LIM lim\_no**

and pressing the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP display:*

```

LIM 1 ISTb OOS OOS_Taps
 Links LIS1 LIS2 LIS3
Unit0: ISTb 2 . . .
Unit1: ManB 2 8 8 8

```

- 14** Determine the state of the LIM.

**If the LIM is**

**Do**

InSv or ISTb and the LIM is located on the link peripheral processor (LPP)      step 17

InSv or ISTb and the LIM is located on the enhanced LPP (ELPP)      step 18

**PM HSLR critical** (continued)

- |  | <b>If the LIM is</b> | <b>Do</b> |
|--|----------------------|-----------|
|  | anything else        | step 15   |
- 15** A problem with the LIM produces a PM LIM alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 16** Determine if the HSLR alarm cleared.
- |  | <b>If the HSLR alarm</b> | <b>Do</b> |
|--|--------------------------|-----------|
|  | cleared                  | step 55   |
|  | did not clear            | step 18   |
- 17** Access the FBus level of the MAP display by typing  
**>FBUS**  
and pressing the Enter key.  
*Example of a MAP display:*
- ```

LIM 0 InSv
                                Links_00S    Taps_00S
Unit0:  InSv                    2            .
Unit1:  InSv                    2            .
                                Tap: 0      4      8      12      16      20      24
FBus0:  ManB                    --BB  --BB  --BB  ....  ....  ....  ....
FBus1:  InSv                    --IM  --S   ----  ....  ....  ....  ....

```
- Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.
- Go to step 19.
- 18** Access the LIS level of the MAP display by typing
>LIS lis_no
and pressing the Enter key.
where
lis_no
is the number of the LIS that corresponds to the LIS number in step 12.
Example of a MAP display:

PM HSLR critical (continued)

```

LIM 8 InSv                                00S    00S_Taps
                                           Links LIS1 LIS2 LIS3
Unit0: InSv                               2      .   .   .
Unit1: InSv                               2      .   .   .
LIS1 1 Tap: 0      4      8
FBus0: ManB  --BB  --BB  --BB
FBus1: InSv  --IM  ---S  ----

```

Note: In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

- 19** Determine the state of the F-buses.

If the F-buses are both	Do
InSv or ISTb	step 22
anything else	step 20

- 20** A problem with the F-bus produces a PM LIMF alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.

- 21** Determine if the HSLR alarm cleared.

If the HSLR alarm	Do
cleared	step 55
did not clear	step 22

- 22** Determine which F-bus taps are associated with the HSLR by typing

>TRNSL fbus_no

and pressing the Enter key.

where

fbus_no

is the number of either F-bus (0 or 1)

Example of a MAP response:

```

LIM 8 LIS 2 FBus 0 Tap 0 is on HLIU 101
LIM 8 LIS 2 FBus 0 Tap 1 is on HSLR 101
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 102
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 102

```

PM HSLR critical (continued)

- 23** From the MAP display generated in step 18, determine the state of the F-bus taps associated with the system-busy HSLR.

Note: The tap number shown in the MAP response in step 22 applies to both F-buses.

If the state of	Do
either F-bus tap is fluctuating from I to S, or is S	step 28
either F-bus tap is M	step 24
both F-bus taps are in service	step 54

- 24** Determine from office records or other office personnel why the tap was taken out of service. When permitted, go to step 25.

- 25** Return the F-bus tap to service by typing

>RTS FBUS fbus_no tap_no

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 11)

If the RTS command	Do
passed, and the other tap is M	step 23
passed, and the other tap is in service	step 26
failed	step 54

- 26** Quit from the LIS level of the MAP display by typing

>QUIT

and pressing the Enter key.

- 27** Determine if the HSLR alarm cleared.

If the HSLR alarm	Do
cleared	step 55
did not clear	step 36

- 28** Manually busy the tap on F-bus 0 by typing

>BSY FBUS 0 tap_no

and pressing the Enter key.

PM HSLR critical (continued)

where

tap_no
is the number of the F-bus tap (0 to 11)

If the BSY command	Do
passed	step 30
failed	step 29

- 29** Force the F-bus tap to busy by typing
>BSY FBUS 0 tap_no FORCE
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

- 30** Manually busy the tap on F-bus 1 by typing
>BSY FBUS 1 tap_no
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

If the BSY command	Do
passed	step 32
failed	step 31

- 31** Force the F-bus tap to busy by typing
>BSY FBUS 1 tap_no FORCE
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

- 32** Replace the NTEX22CA card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

- 33** Return the tap on F-bus 0 to service by typing
>RTS FBUS 0 tap_no
 and pressing the Enter key.

where

PM HSLR critical (continued)

tap_no is the number of the F-bus tap (0 to 11)	
If the RTS command	Do
passed	step 34
failed	step 54
34	Return the tap on F-bus 1 to service by typing >RTS FBUS 1 tap_no and pressing the Enter key. <i>where</i> tap_no is the number of the F-bus tap (0 to 11)
If the RTS command	Do
passed	step 35
failed	step 54
35	Quit from the F-bus level of the MAP display by typing >QUIT and pressing the Enter key.
36	Post the system busy HSLR by typing >POST HSLR liu_no and pressing the Enter key. <i>where</i> liu_no is the number of the HSLR (0 to 511)
37	Manually busy the HSLR by typing >BSY and pressing the Enter key.
If the response is	Do
HSLR liu_no BSY Passed	step 40
Busying HSLR liu_no will take a CCS7 resource out of ser- vice Please confirm ("YES", "Y", "NO", or "N"):	step 38

PM HSLR critical (continued)

	If the response is	Do
	Anything else (apart from "failed"), including additional messages with above response	step 54
	HSLR liu_no BSY Failed	step 39
38	Confirm the command by typing >YES and pressing the Enter key. Go to step 40	
39	Force the HSLR to busy by typing >BSY FORCE and pressing the Enter key.	
	If the response is	Do
	HSLR liu_no BSY Passed	step 40
	Busying HSLR liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 40
	Anything else, including additional messages with above response	step 54
40	Confirm the command by typing >YES and pressing the Enter key.	
41	Reset the HSLR by typing >PMRESET and pressing the Enter key.	
	If the PMRESET command	Do
	passed	step 42
	failed	step 42

PM HSLR critical (continued)

- 42 Load the HSLR by typing
>LOADPM
and pressing the Enter key.
- 43 Test the HSLR by typing
>TST
and pressing the Enter key.
- | If the TST command | Do |
|---|---------|
| passed | step 46 |
| failed, and a card list is generated that contains cards that have not already been changed | step 44 |
| anything else | step 54 |
- 44 Record the location, description, slot number, and the product engineering code (PEC), including suffix, of the first card on the list.
- 45 There is a hardware fault in the card. Replace the card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, go to step 37.
- 46 Return the HSLR to service by typing
>RTS
and pressing the Enter key.
- | If the RTS command | Do |
|--------------------|---------|
| passed | step 47 |
| failed | step 54 |
- 47 Access the C7LKSET level of the MAP display to determine if the CCS7 link on the HSLR is in service by typing
>CCS;CCS7;C7LKSET
and pressing the Enter key.
- 48 Post the linkset associated with the HSLR by typing
>POST C linkset_name
and pressing the Enter key.
where
linkset_name
is the linkset name
Example of a MAP display:

PM HSLR critical (end)

```

Linkset TR000002    InSv
  Traf  Sync
LK Stat  Stat  Resource  Stat Physical Access
1  InSv  Sync    DLIU 8    InSv  DS1
2  InSv  Sync    DLIU 7    InSv  DS1

```

- 49** Determine the traffic state of the CCS7 link for the HSLR you are working on.

Note: The number of the HSLR you are working on is shown under the Resource header on the MAP display. The traffic state of the CCS7 link is shown under the Traf Stat header.

If the state of the CCS7 link is	Do
InSv	step 55
anything else	step 50

- 50** Wait 8 min to see if the CCS7 link recovers when the HSLR re-establishes itself.

If the state of the link is	Do
InSv	step 55
anything else	step 51

- 51** Perform the procedure *Activating CCS7 links* in this document. When you have completed the procedure, return to this point.

- 52** Determine if the link activated.

If the link activation	Do
passed	step 53
failed	step 54

- 53** Determine if the HSLR alarm cleared.

If the alarm	Do
cleared	step 55
decreased in number (for example, changed from 2HSLR to 1HSLR)	step 5
did not clear	step 54

- 54** For further assistance, contact the personnel responsible for the next level of support.

- 55** You have completed this procedure.

PM IPGW Major

Alarm display

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	PM 1IPG M	.	.	.	.	.

Indication

The alarm code IPG appears under the PM header at the IPGW level of the MAP display. This code indicates an Internet Protocol Gateway (IPGW) alarm. A number precedes the code, and an M appears below the code. The number preceding the alarm code indicates the number of IPGWs affected. The M indicates that the alarm class is major.

Meaning

An IPGW is system busy (SysB) or C-side busy (CBsy). The IPGW resides in an IP-ready line trunk controller (LTCI). A SysB or CBsy IPGW causes the LTCI to go in-service trouble (ISTb). The following conditions trigger a major alarm on the IPGW:

- transition of the IPGW node state to SysB
- transition of the IPGW node state to CBsy

Impact

The affected IPGW cannot support Centrex IP service.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

Repeat this procedure if it is not successful when you first perform the procedure.

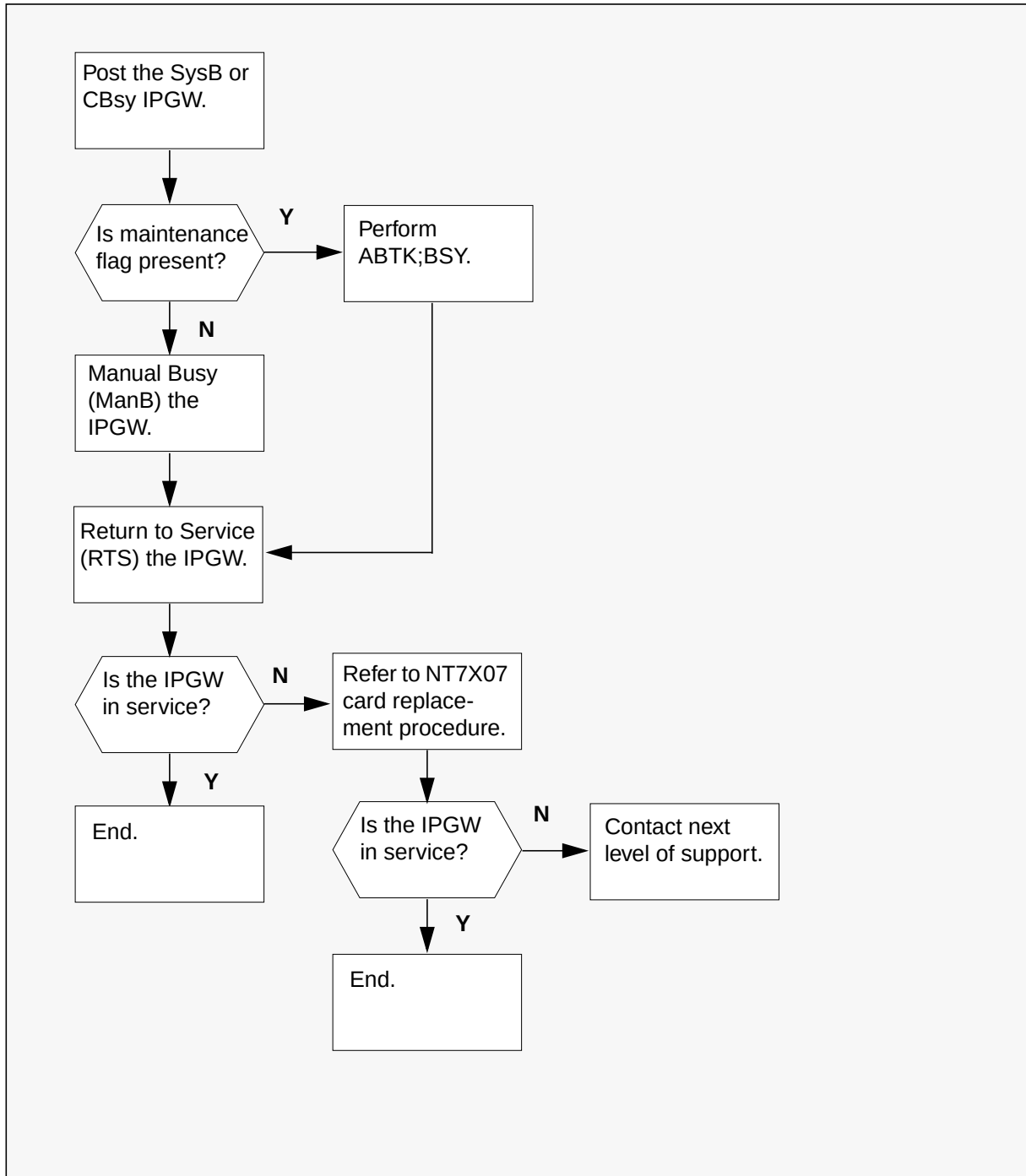
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance and support can find the problem. More detail about logs appears in the *Log Report Reference Manual*.

PM IPGW

Major (continued)

Action

The flowchart that follows provides a summary of this procedure. Use the instructions in the step action procedure that follows the flowchart to clear the alarm.

PM IPGW
Major (continued)**Summary of clearing a PM IPGW alarm**

PM IPGW
Major (continued)

Clearing a PM IPGW major alarm

At the MAP display

- 1 Go to the PM level of the MAP display and check for SysB or CBsy Gateway cards. Type

>MAPCI;MTC;PM;POST IPGW SYSB

If there are no SysB Gateway cards, type

>MAPCI;MTC;PM;POST IPGW CBSY

and press the Enter key.

Example of MAP response

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1IPG	.	.	.	.	.
				M					
	IPGW			SysB	ManB	OffL	CBsy	ISTb	InSv
0	Quit	PM		1	4	4	0	1	10
2	Post_	IPGW		1	4	1	0	0	3
3									
4		IPGW	GWIP 06 1	SysB		Links_00S:	CSide	0	
5	Trnsl_								
6	Tst_								
7	Bsy_								
8	RTS_								
9	OffL								
10	LoadPMQ								
11									
12	Next								
13									
14	QueryPM								
15	PMReset								
16	Spares								
17									
18									

- 2 Determine your next step.

If	Do
the system recovery controller automatically clears the alarm	step 6
the system recovery controller does not automatically clear the alarm	step 3

PM IPGW
Major (end)

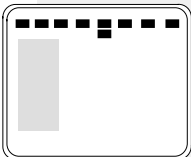
- 3 Manually busy the Gateway card. Type
>BSY
and press the Enter key.
Note: If the maintenance flag is up, type **ABTK;BSY** to clear.
- 4 Bring the Gateway card into service. Type
>RTS
and press the Enter key.
- 5 Determine your next step.

If	Do
the Gateway card does not return to service	refer to the NT7X07 card replacement procedure
- 6 The procedure is complete.

PM IPML

major or minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1IPML	.	.	.	.	.
					M					

Indication

At the MTC level of the MAP terminal, IPML (preceded by a number) appears under the PM header of the alarm banner. The IPML indicates an alarm for an interperipheral message link (IPML).

Meaning

A major (M) alarm occurs when an IPML is system busy (SysB), C-side busy (CBsy), or P-side busy (PBsy).

A minor alarm occurs when an IPML is in-service trouble (ISTb) or manual busy (ManB).

The number that precedes IPML is the number of IPMLs with an alarm.

Note: The IPMLs do not require manual maintenance. A problem can occur at the C-side or the P-side of the link. The problem occurs when an IPML is in a state other than InSv or ManB. You must clear the problem at the Net or PM level of the MAP terminal.

Result

You cannot establish or disassemble common channel signaling (CCS) when an IPML is SysB, CBsy, ManB, or PBsy. An IPML is ISTb and does not affect service.

Common procedures

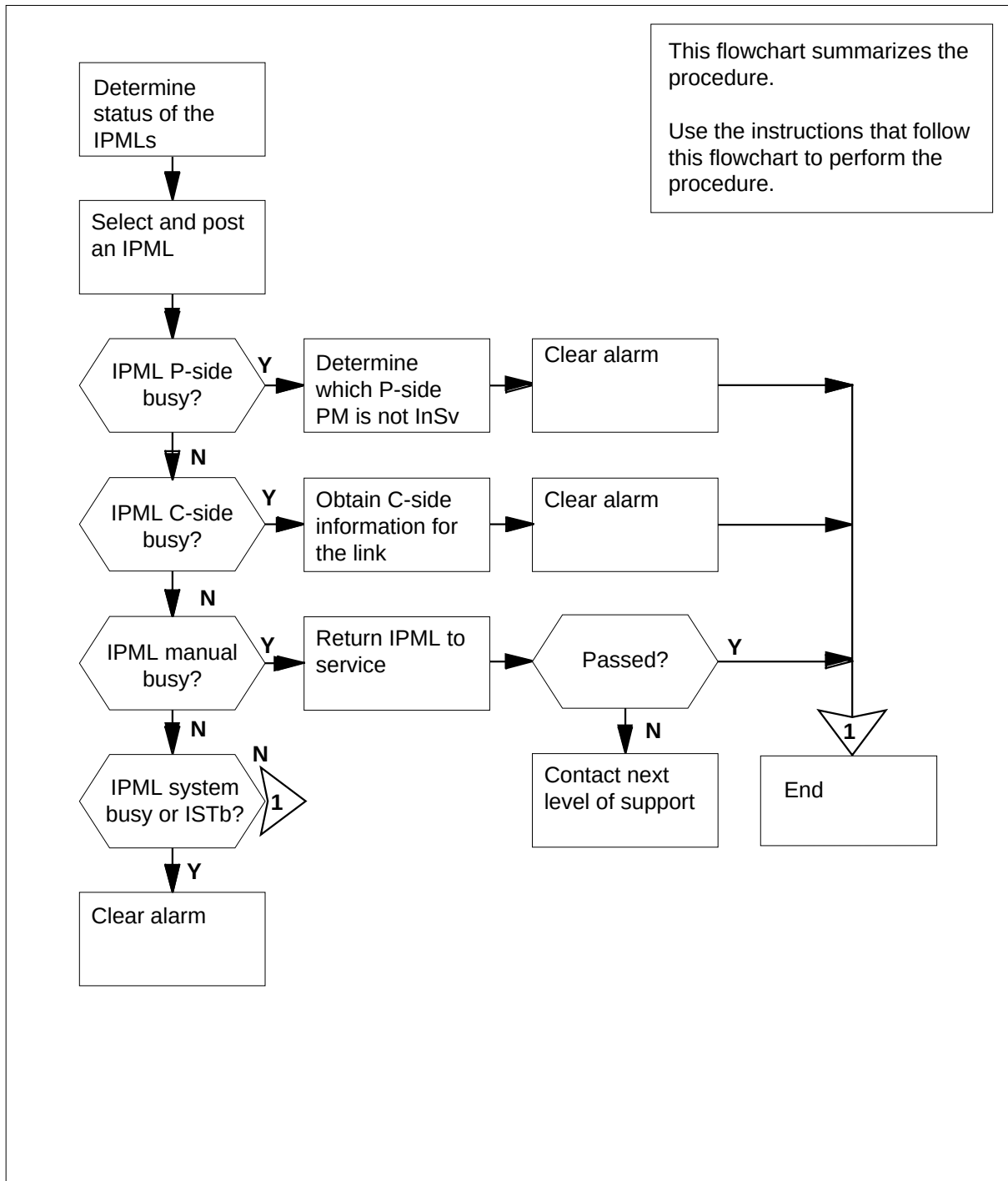
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM IPML major or minor (continued)

Summary of clearing a PM IPML major or minor alarm



PM IPML
major or minor (continued)

Clearing a PM IPML major or minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type
>MAPCI;MTC;PM
and press the Enter key.
Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	3	5	7	6	12

- 2 Determine if an alarm appears under the Ext header of the MAP display.

If an Ext alarm	Do
appears	step 3
does not appear	step 4

- 3 Perform the correct procedure in this document.
4 Determine if an audible alarm rings.

If an alarm	Do
rings	step 5
does not ring	step 6

- 5 To silence the alarm, type
>SIL
and press the Enter key.
6 To access the IPML level of the MAP terminal, type
>IPML
and press the Enter key.
Example of a MAP response:

IPML	PBsy	SysB	ManB	OffL	CBsy	ISTb	InSv
	3	0	0	0	0	0	0
IPML		P0	P1		Port	Ch	Port
IPC0							
IPC1							

PM IPML major or minor (continued)

- 7 From the MAP display, determine the status of the IPMLs.

If the status of the IPMLs	Do
is SysB	step 9
is ISTb	step 8
is CBSy	step 20
is PBSy	step 25
is ManB	step 27

- 8 To post the in-service trouble IPML, type
>POST ISTb
and press the Enter key.

If an IPC	Do
is SysB or ISTb	step 10
is ManB	step 29
is CBSy	step 21

- 9 To post the system busy IPML, type
>POST SYSB
and press the Enter key.

Note: A problem is present at the C-side or the P-side of the link.

- 10 From the MAP display, record the type of PM that connects to the P-side of the link. Record the PM number.

- 11 To obtain the network, plane, and link numbers, type
>TRNSL
and press the Enter key.

Example of a MAP response:

PM IPML

major or minor (continued)

```

Link 0: NET 0 0 5;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 1: NET 1 0 5;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 0: NET 0 0 3;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 1: NET 1 0 3;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 2: NET 0 0 13;Cap S;Status:OK ,C,P
Link 3: NET 1 0 13;Cap S;Status:OK ,C,P
Link 2: NET 0 0 6;Cap S;Status:OK ,C,P
Link 3: NET 1 0 6;Cap S;Status:OK ,C,P

```

- 12** To post one of the two PMs that connect to the P-side of the link, type

>POST pm_type pm_no

and press the Enter key.

where

pm_type

is the type of PM that is not posted (MSB, DTC, LTC)

pm_no

is the number of the PM (0 to 255)

- 13** Check the status of the PM.

If the status of the PM	Do
is InSv	step 14
is not InSv	step 16

- 14** To post the other PM that connects to the P-side of the link, type

>POST pm_type pm_no

and press the Enter key.

where

pm_type

is the type of PM that is not posted (MSB, DTC, LTC)

pm_no

is the number of the PM (0 to 255)

- 15** Check the status of the PM.

If the status of the PM	Do
is InSv	step 23
is not InSv	step 16

PM IPML major or minor (continued)

	If the PM	Do
16	Determine the PM type.	
	is an MSB	step 17
	is a DTC	step 18
	is an LTC	step 19
17	Perform the procedure <i>Clearing a PM MSB6, MSB7, critical, major, or minor alarm</i> in this document. This procedure returns the PM to service.	
18	Perform the procedure <i>Clearing a PM DTC, critical, major, or minor alarm</i> in this document. This procedure returns the PM to service.	
19	Perform the procedure <i>Clearing a PM LTC, critical, major, or minor alarm</i> in this document. This procedure returns the PM to service.	
20	To post the C-side busy IPML, type >POST CBSY and press the Enter key. Note: A problem is present at the C-side or the P-side of the link.	
21	The problem is present at the Net level. To obtain the network, plane, and link numbers, type >TRNSL and press the Enter key.	
22	Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.	
23	The next action depends on your reason to perform this procedure.	
	If another procedure	Do
	did not direct you to this procedure	step 36
	directed you to this procedure	step 24
24	Return to the procedure that sent you to this procedure and continue as directed by the step-action procedure.	
25	To post the P-side busy IPML, type >POST PBSY and press the Enter key. Note: A fault is present at the C-side or the P-side of the link.	

PM IPML major or minor (continued)

- 26 The PM that connects to the peripheral side of the link is out of service. Record the type of PM and the PM number.
- | If the PM | Do |
|-----------|---------|
| is an MSB | step 17 |
| is a DTC | step 18 |
| is an LTC | step 19 |
- 27 To post the manually-busy IPML, type
>POST MANB
and press the Enter key.
- 28 Choose an interperipheral connection (IPC) to use (0 or 1).
- 29 Determine from office records or operating company personnel why the IPC is manual busy. When you have permission, continue the procedure.
- 30 To return the IPC to service, type
>RTS ipc_no
and press the Enter key.
where
ipc_no
is the number of the IPC that has not returned to service (0 or 1)
Example of a MAP response:

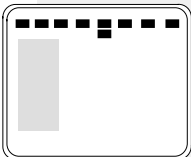
This will temporarily remove IPML ipml_no IPC ipc_no from service Please confirm ("YES", or "NO")
- 31 To confirm the command, type
>YES
and press the Enter key.
- | If the RTS command | Do |
|---|---------|
| passes, the IPC is InSv, and the other IPC is ManB | step 29 |
| passes, both IPCs are InSv, and no other IPMLs are ManB | step 36 |
| passes, both IPCs are InSv, and other IPMLs are ManB | step 33 |
| passes, and the IPML is not InSv | step 32 |
| fails, and the IPML is not InSv | step 35 |

PM IPML
major or minor (end)

- 32** Go to step 7 and continue as directed by the step-action procedure according to the state of the IPML.
- 33** To display the next IPML in the posted set, type
>NEXT
and press the Enter key.
- 34** Repeat steps 28 to 31 for each ManB IPML.
- 35** For additional help, contact the next level of support.
- 36** The procedure is complete.

PM ISTb minor

Alarm display

	CM	MS	IOD	Net	PM 1ISTb	CCS	Lns	Trks	Ext
.	.	.	.	.					

Indication

At the MTC level of the MAP display, ISTb (preceded by a number) appears under the PM header of the alarm banner. The ISTb indicates a minor alarm for an in-service trouble (ISTb).

This alarm applies to the following PMs:

- maintenance trunk module (MTM)
- service trunk module (STM)
- trunk module 8 (TM8)

Meaning

The indicated number of PMs are ISTb.

Result

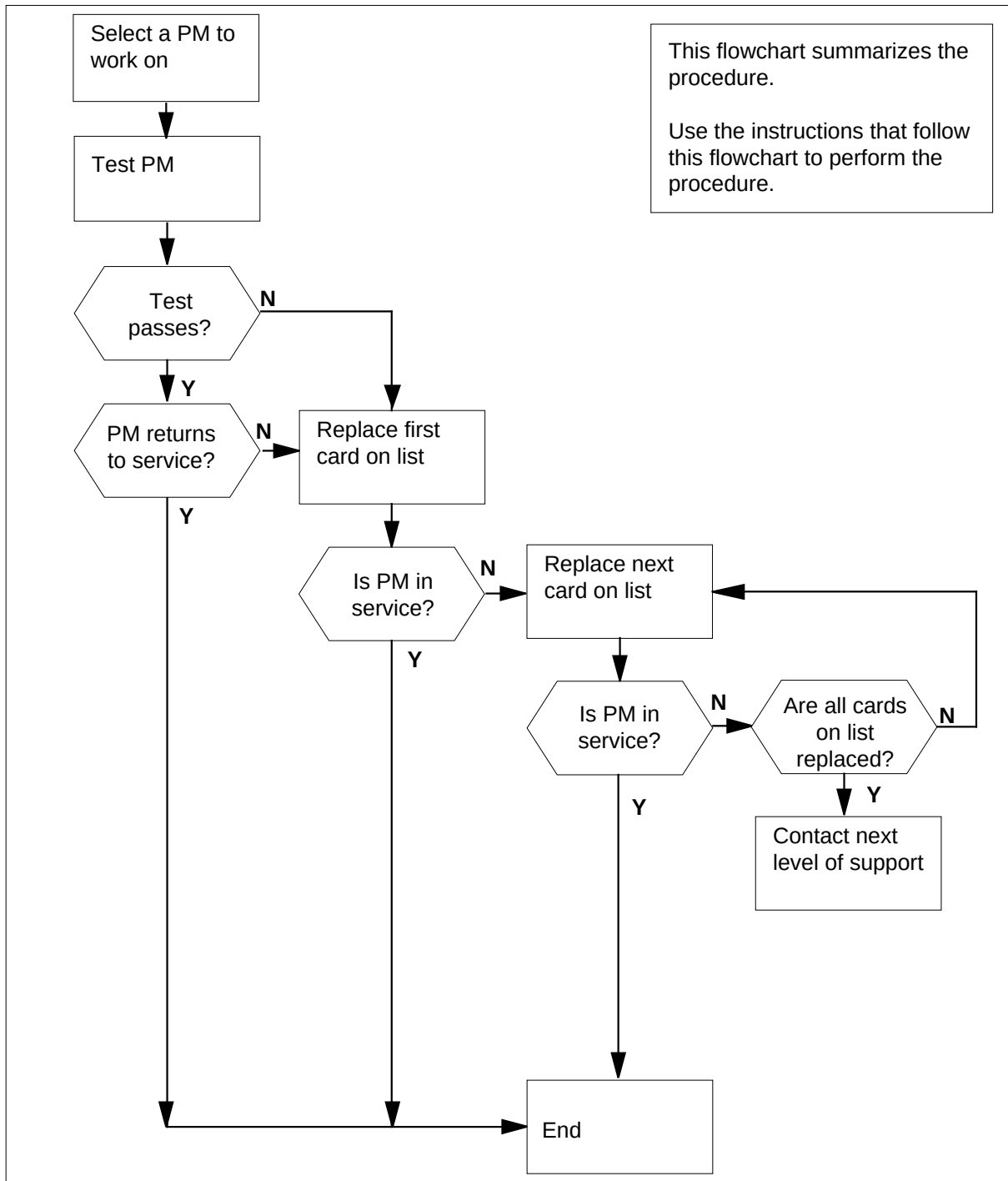
The alarm does not affect service.

Common procedures

This procedure refers to *Monitoring system maintenance*.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM ISTb
minor** (continued)**Summary of clearing a PM ISTb minor alarm**

PM ISTb minor (continued)

Layout of a TM shelf

		21
NT2X09	Power converter card	20
	Trunk interface circuit	19
	Trunk interface circuit	18
	Trunk interface circuit	17
	Trunk interface circuit	16
	Trunk interface circuit	15
	Trunk interface circuit	14
	Trunk interface circuit	13
	Trunk interface circuit	12
	Trunk interface circuit	11
	Trunk interface circuit	10
	Trunk interface circuit	09
	Trunk interface circuit	08
	Trunk interface circuit	07
	Trunk interface circuit	06
	Trunk interface circuit	05
NT2X59	Codec and tone card	04
NT2X53	Control card	03
NT0X70	Processor card	02
NT2X45	Network interface card	01

PM ISTb minor (continued)

Layout of an MTM shelf

NT2X06	Power converter card	21
—OR—		
NT2X70	Power converter card	20
NT0X50	Filler card	19
		18
NT2X09	Power converter card	17
	Trunk interface circuit	16
	Trunk interface circuit	15
	Trunk interface circuit	14
	Trunk interface circuit	13
	Trunk interface circuit	12
	Trunk interface circuit	11
	Trunk interface circuit	10
	Trunk interface circuit	09
	Trunk interface circuit	08
	Trunk interface circuit	07
	Trunk interface circuit	06
	Trunk interface circuit	05
NT2X59	Codec and tone card	04
NT2X53	Control card	03
NT0X70	Processor card	02
NT2X45	Network interface card	01

PM ISTb
minor (continued)

Clearing a PM ISTb minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type
>MAPCI;MTC;PM
and press the Enter key.
Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If an audible alarm				Do		
rings				step 2		
does not ring				step 3		

- 2 To silence the alarm, type
>SIL
and press the Enter key.
- 3 To display all the ISTb PMs, type
>DISP STATE ISTb
and press the Enter key.
Example of a MAP response:
MTM 4 ISTb

Note: If multiple types of PMs are ISTb, work on MTMs first. If multiple PMs of the same type are ISTb, select one to use.
Record the number for the PM.

At the MAP terminal

- 4 To post the PM, type
>POST pm pm_no
and press the Enter key.
where
pm
is the type of PM (MTM, STM, or TM8)

PM ISTb minor (continued)

pm_no
is the number (0 to 2047) of the PM

If a Mtce flag		Do
appears next to the PM		step 5
does not appear		step 6
5	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the minor alarm	
	changes	step 22
	remains	step 6
6	clears	step 24
	To test the PM, type	
	>TST	
	and press the Enter key.	
	If the TST command	
	fails, a card list is generated, and the PM type is neither an MTM or TM8	step 1
	fails, a card list is generated, the PM type is an MTM or TM8, and the office is not a TOPS office (that is, a DMS-100 office, or a DMS-200 or DMS-100/200 office without the TOPS functionality)	step 1
	fails, a card list is generated, the PM type is either an MTM or TM8, and the office is a TOPS office (that is, a DMS-200 or DMS-100/200 office with the TOPS functionality)	step 7
	fails and a card list is not generated	step 23
	passes and the alarm clears	step 24
7	Check the PM module (MTM or TM8) posted in step 4 for any associated TOPS positions in table TOPSPOS by typing	
	>table TOPSPOS	
	>list 20	
	and pressing the Enter key.	

PM ISTb minor (continued)

The following figure shows sample datafill for table TOPSPOS.

MAP display example for table TOPSPOS

POSNO	VCCKT	VCPDGRP	CARDCODE	DATAPATH	POSAREA
110	TM8 2 10	NPDGP	2X72AA		
	DMODEM BP ASCII	TM8	2 11 NPDGP	BELL108	
			IC 1	DASERV	INTCSERV \$
370	TM8 0 26	NPDGP	2X72AA		
	DMODEM SP ASCII	TM8	0 27 NPDGP	BELL108	
			OPR 3	TOPSACD	TASERV \$ GEN \$
570	TM8 8 20	NPDGP	2X88AA		
	DMODEM MP ASCII	TM8	8 21 NPDGP	BELL202	

In the above example, the first tuple is for TOPS position 110 that uses TM8 number 2, circuit 10, for a BP (basic purpose) type position. The other tuples show position types SP (single purpose) and MP (multi-purpose). A TM8 is only used on these position types (BP, SP, and MP). Additional information on these position types follows:

- An SP position refers to a TOPS 04 position. The TM8 is connected to the position either directly (on older systems with the TOPS 04 ASCII protocol) or through a TOPS 04 Controller (using the newer AOSS ASCII protocol). For further information on a TOPS 04 Controller (PEC NT4X73), refer to documents PLN-2281-001, *TOPS MP/04 Technical Specification*, and NED-297-0003, *DMS-100F Maintenance and Operations Manual*.
- A BP position is a dedicated directory assistance/intercept terminal. The TM8 connects to the position through a TOPS 04 Controller using AOSS ASCII protocol.
- An MP position connects to the TM8 through a standalone TOPS Position Controller (sTPC). An sTPC cannot be posted on the MAP display and does not generate alarms on the DMS switch. The sTPC is accessed through the TPC Maintenance and Administration Interface (TAMI). For more information, refer to the *TOPS MP TAMI User Guide*, 297-2281-530.

Check the remaining tuples in table TOPSPOS for any other associated positions and note the position numbers. Repeatedly, type the following command and check the displayed tuples until all tuples are examined

>list 20

and pressing the Enter key.

If any TOPS positions are supported by the posted PM in step 4, check with an operator Force Management supervisor to see if these TOPS positions are

PM ISTb minor (continued)

actively processing calls. This is possible since a PM could fail the test in step 6 and still be handling calls.

IfAre associated positions handling calls?	Do
no	step 1
yes (note, it is important not to continue with step 1; otherwise, active positions would be disabled and lose calls)	step 22

- 8 To busy the PM, type
>BSY
 and press the Enter key.

At the equipment frame

- 9 Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figures *Layout of a TM shelf* and *Layout of an MTM shelf* for help to locate the card.

If the card	Do
is an NT0X70, NT2X06, NT2X09, NT2X45, NT2X53, or NT2X70	step 10
is other than listed here	step 16

At the MAP terminal

- 10 To load the PM, type
>LOADPM
 and press the Enter key.
 where
 pm
 is the type of PM (MTM, STM, or TM8)
 pm_no
 is the number (0 to 2047) of the PM

If the LOADPM	Do
fails, the system generates a card list, and you have not replaced all the cards that have faults	step 9
fails, the system generates a card list, and you re-placed all the cards that have faults on the list	step 23

PM ISTb minor (continued)

	If the LOADPM	Do
	fails, and the system does not generate a card list	step 23
	fails, and the response is loadfile not found in directory	step 11
	passes	step 16
11	Check office records to determine the device and volume that contains the PM load files.	
	If your device	Do
	is an SLM	step 12
	is a DDU	step 14
12	To access the DISKUT level, type >DISKUT and press the Enter key.	
13	To list the PM load file to the user directory, type >LF device_volume_name and press the Enter key. <i>where</i> device_volume_name is the location and name of the PM load file <i>Example of input:</i> LF S00DPMLOADS Go to step 10.	
14	To access the DSKUT level, type >DSKUT and press the Enter key.	
15	To list the PM load file to the user directory, type >LIV device_volume_name and press the Enter key. <i>where</i> device_volume_name is the location and name of the PM load file <i>Example of input:</i> LIV D01PMLOADS Go to step 10.	
16	To return the PM to service, type >RTS	

PM ISTb minor (continued)

and press the Enter key.

	If the PM	Do
	does not return to service, the system generates a card list, and you did not replace all the cards that have faults on the list	step 9
	does not return to service, the system generates a card list, and you replaced all the cards that have faults on the list	step 23
	does not return to service and the system does not generate a card list	step 23
	returns to service	step 17
17	To access the TTP level, type >TRKS;TTP and press the Enter key.	
18	To post the PM, type >POST P pm pm_no and press the Enter key. <i>where</i> pm is the type of PM (MTM, STM, or TM8) pm_no is the number (0 to 2047) of the PM	
19	To busy all trunk circuits, type >BSY ALL and press the Enter key.	
20	To post the PM again, type >POST P pm pm_no and press the Enter key. <i>where</i> pm is the type of PM (MTM, STM, or TM8) pm_no is the number (0 to 2047) of the PM	
21	To return to service all trunk circuits, type >RTS ALL	

PM ISTb

minor (end)

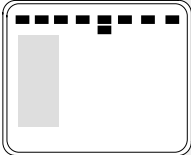
and press the Enter key.

Go to step 24.

- 22** The ISTb minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 24.
- 23** You require additional help to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to attempt to clear this alarm.
- 24** The procedure is complete.

PM LCM critical

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCM	.	.	.	.
				C				

Indication

At the MTC level of the MAP terminal, LCM (preceded by a number) appears under the PM header of the alarm banner. A *C* follows the LCM. The LCM indicates a critical alarm for a line concentrating module (LCM). The number that precedes the LCM indicates the number of LCMs that the alarm affects. The preceding figure illustrates an alarm banner with an LCM critical alarm.

Meaning

The LCM is system busy (SysB) or C-side busy. An LCM is SysB if both units are SysB. An LCM is SysB if one unit is SysB and the other unit is manual busy (ManB). An LCM is C-side busy if both units are C-side busy.

Result

Service stops when an LCM is SysB or C-side busy.

Common procedures

This procedure refers to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*
- *Clearing ringing generator faults*

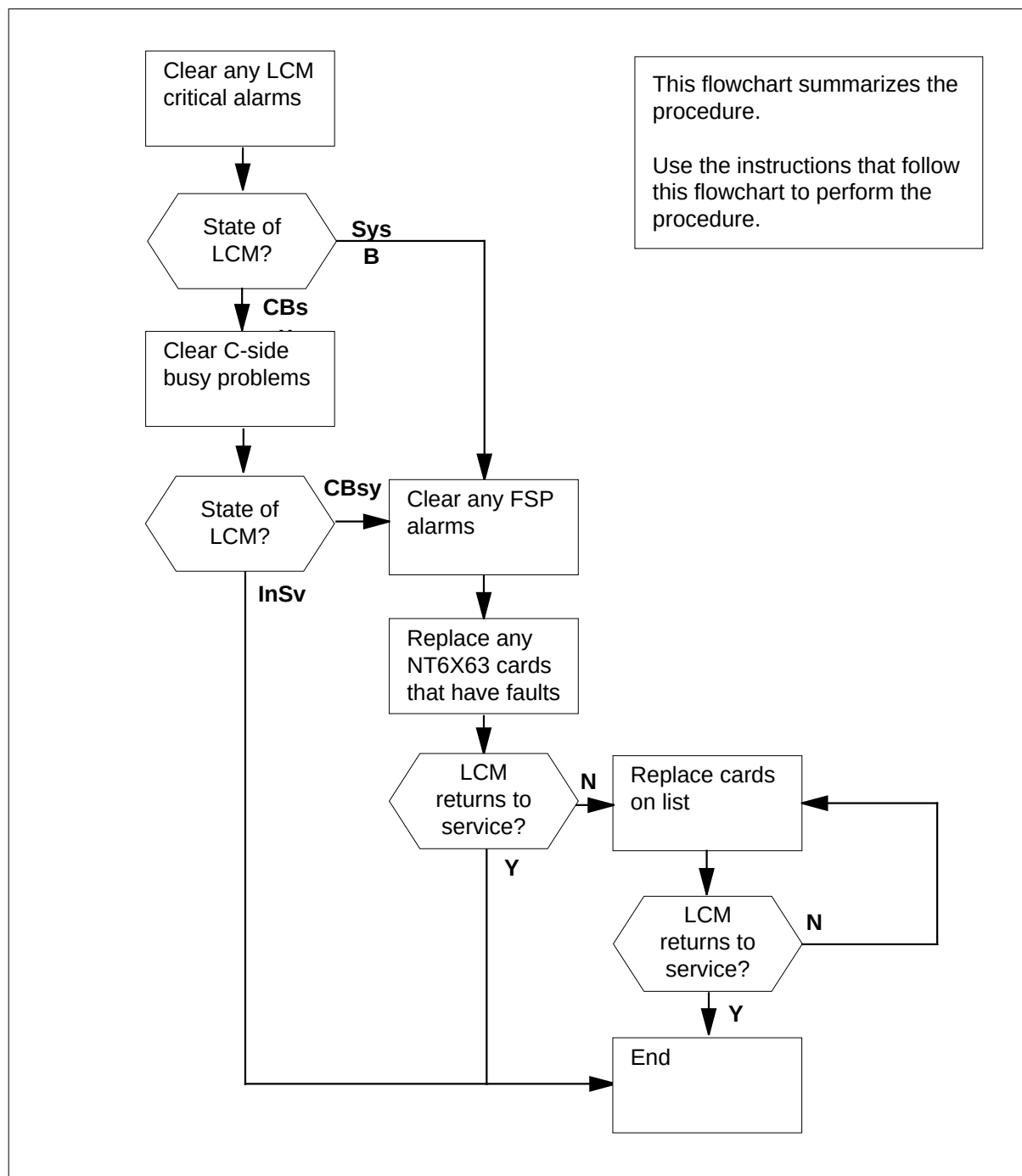
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LCM critical (continued)

Summary of clearing a PM LCM critical alarm



PM LCM critical (continued)

Clearing a PM LCM critical alarm

At the MAP terminal

- 1** To access the PM level of the MAP terminal, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

If

an audible alarm rings

the *C* indicator at the alarm
banner flashes

the response is other than listed
here

Do

step 2

step 2

step 3

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To determine the status of all LCMs and line group controllers (LGCs), type

>STATUS

and press the Enter key.

Example of a MAP response:

PM LCM critical (continued)

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	2	0	0	2	0	25
TM8	0	0	0	0	0	2
MTM	0	0	0	0	0	3
LGC	1	0	0	0	0	3
LCM	1	0	0	2	0	0
DTC	0	0	0	0	0	1
LIM	0	0	0	0	0	1
LIU7	0	0	0	0	0	1
FRIU	0	0	0	0	0	1
DTCI	0	0	0	0	0	1
LCME	0	0	0	0	0	1
MORE . . .						

Note: If LCMs are SysB and CBsy, work on the SysB LCMs first.

	If	Do
	a minimum of one LGC is SysB or CBsy	step 4
	none of the LGCs are SysB or CBsy	step 5
4	A minimum of one LGC critical alarm is present. To clear all LGC critical alarms, perform the correct procedure in this document. Wait for the system to clear related LCM alarms.	
	If	Do
	the system clears all LCM alarms	step 42
	the LCM critical alarm remains	step 5
	the LCM critical alarm changes to an LCM major alarm or an LCM minor alarm	the correct alarm clearing procedure in this document. Go to step 42.
5	To display all the CBsy or SysB LCMs, type >DISP STATE state LCM and press the Enter key. <i>where</i> state is CBsy or SysB, as determined in step 3	

PM LCM critical (continued)

Example of a MAP response:

SYSB LCM:HOST 00 0

Note: If multiple LCMs are CBSy or SysB, select an LCM to use. Record the number of the LCM.

	If you	Do
	recover a CBSy LCM	step 6
	recover a SysB LCM	step 7
6	Go to the common procedure <i>Clearing PM C-side faults</i> in this document. Complete the procedure and return to this point.	
	If	Do
	the LCM remains CBSy	Treat the CBSy LCM as a SysB LCM and go to step 7.
	the LCM changes to SysB	step 7
	one LCM unit returns to service	step 41
	both LCM units return to service	step 42
7	Check the EXT header of the alarm banner.	
	If an FSP alarm	Do
	is present	step 8
	is not present	step 23
8	To locate the FSP alarm, type >EXT; LIST FSP and press the Enter key. <i>Example of a MAP response:</i> FSPAISD In this example, the alarm is an FSP alarm on Aisle D.	

At the equipment aisle

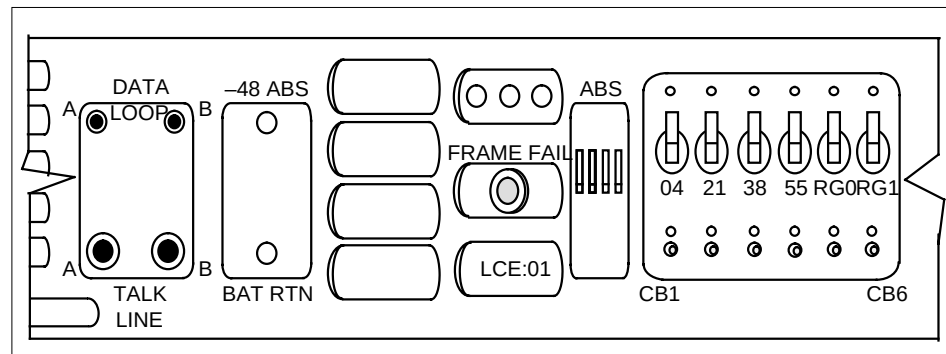
- 9** Go to the aisle identified in step 8. The end aisle alarm is lit.

At the equipment frame

- 10** Identify the frame with the FSP alarm. Check the frame fail lamp on the frame of each frame supervisory panel (FSP). The frame with the FSP alarm will have a lit frame fail lamp. The following figure shows an FSP with a lit fail lamp.

PM LCM

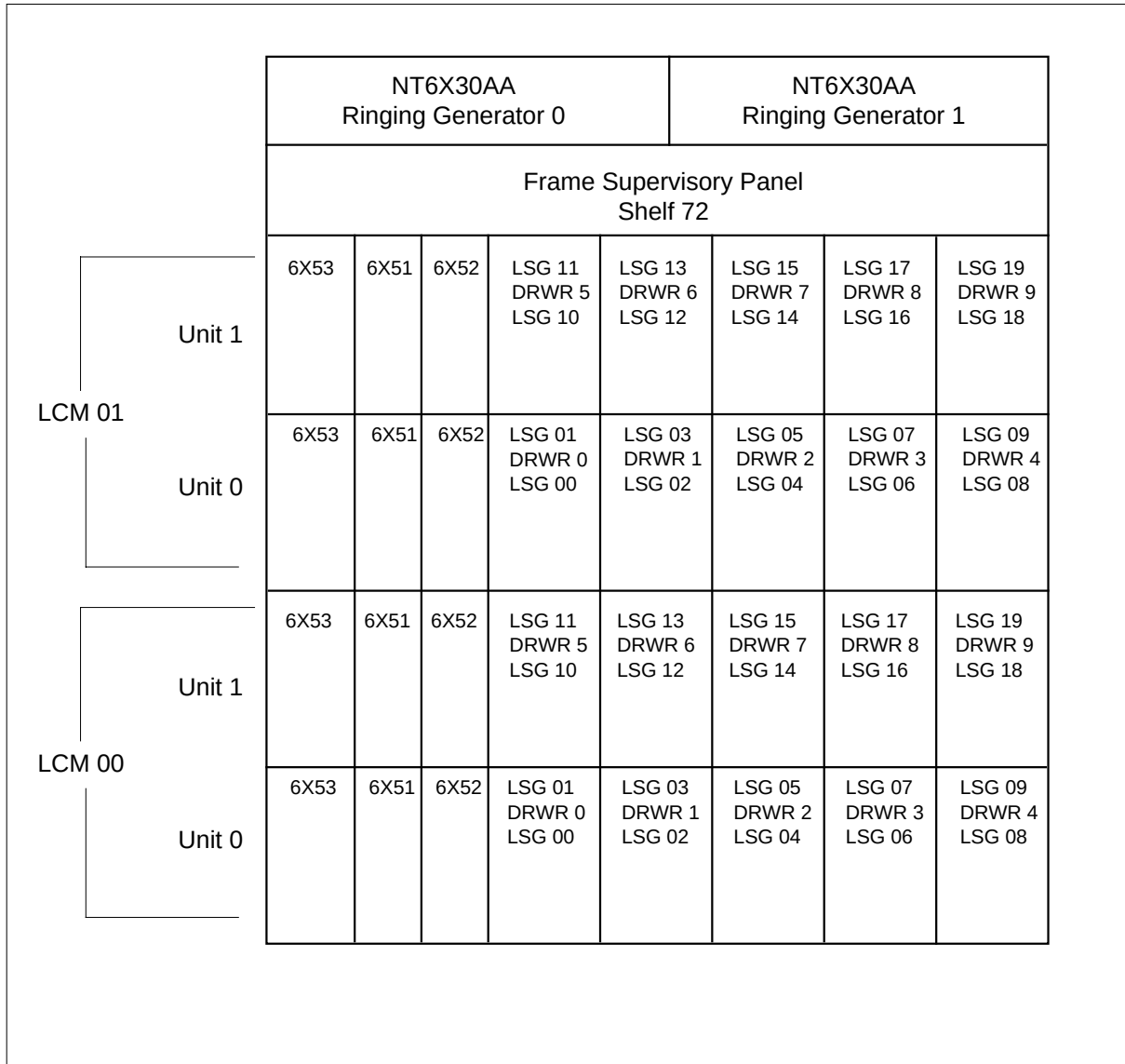
critical (continued)



- 11** Identify the LCMs in the frame. Refer to the figure *LCE frame* on page for help.

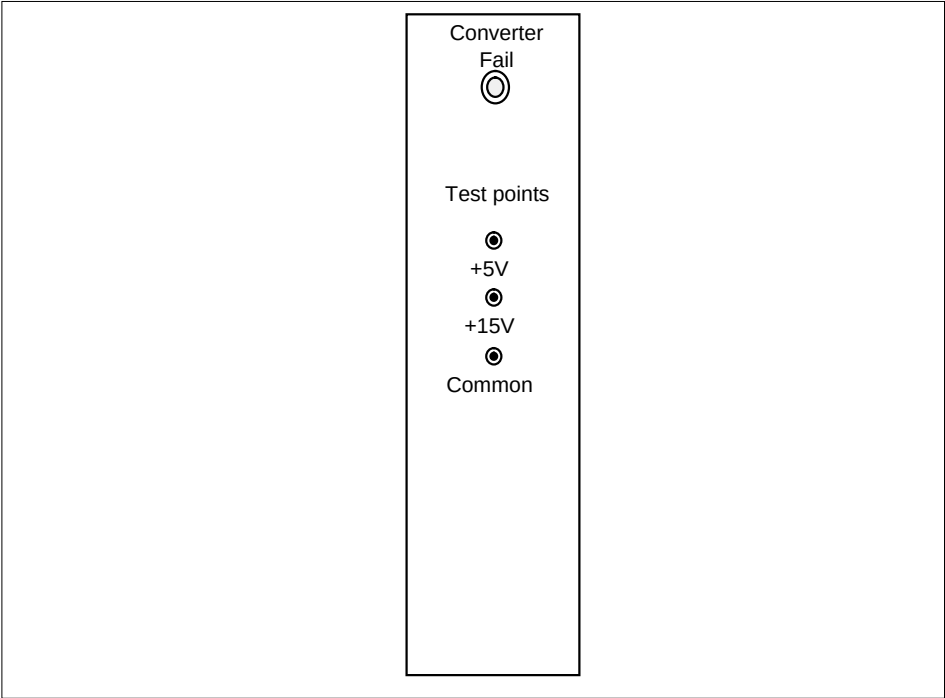
PM LCM critical (continued)

LCE frame



- 12** Check the Converter Fail LED on each 6X53 power converter card in the frame. Refer to the figure *LCE frame* for help to locate this card. Refer to the following figure for help to check the Converter Fail LED.

PM LCM
critical (continued)



		If any LEDs	Do
		are lit	step 13
		are not lit	step 17
13	Note the LCM with the LED light on.		
14	To post the system busy LCM and identify the location of the system busy LCM, type >PM; POST LCM lcm_no;QUERYPM and press the Enter key. where lcm_no is the number (0 to 255) of the LCM that you recorded in step 5 Example of a MAP response:		

PM LCM critical (continued)

```

LCM HOST 00 0 SysB Links_00S: CSide 17 PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact SysB /RG 0
          11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
      .. -- -- -- -- .. -- -- -- --
QueryPM
PM Type: LCM Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 64k , Unit 1: 64K
Loadnames: LCMINV - LCM01D , Unit0: LCM01D , Unit1: LCM01D
LCM HOST 00 0 is included in the list of LCM types
      scheduled for a REX test.
Last REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCM 00 0 6X04AA
Services: NEUTRAL
Next LCM for REX

```

	If a Mtce indicator	Do
	appears next to either unit	step 15
	does not appear	step 16
15	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the critical alarm	Do
	remains	step 16
	changes	step 41
	clears	step 42
16	Determine if the LCM is the same as the LCM identified in step 13.	
	If the LCM	Do
	is different	step 17
	is the same	step 18
17	Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.	

PM LCM critical (continued)

- 18 To busy the LCM, type
>BSY PM
 and press the Enter key.

At the equipment frame

- 19 Power down the 6X53 power converter card in the LCM unit in use. To power down the 6X53 power converter card, switch off the circuit breaker that supports the shelf. Refer to the figure in step 10 for help.
- 20 Change the 6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 21 Power up the 6X53 power converter card in the LCM unit in use. To power up the 6X53 power converter card, switch on the circuit breaker that supports the shelf. Refer to the figure in step 10 for help.
- 22 To load the LCM unit, type
>LOADPM UNIT unit_no
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LCM unit

If the load	Do
passes	step 33
fails	step 40

- 23 To post the LCM, type
>POST LCM lcm_no
 and press the Enter key.

where

lcm_no
 is the number (0 to 255) of the LCM that you recorded in step 5.

Example of a MAP response:

```
LCM  HOST 01 1  SysB  Links_00S:  CSide 17, PSide 0
Unit0:   Act  SysB      /RG 0
Unit1:  Inact   SysB      /RG 1
```

If a Mtce flag	Do
appears next to either unit	step 24
does not appear	step 25

PM LCM critical (continued)

- 24** Go to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.
- | If the critical alarm | Do |
|-----------------------|---------|
| remains | step 25 |
| changes | step 41 |
| clears | step 42 |
- 25** To query the LCM for indications that have faults, type
>QUERYPM FLT
 and press the Enter key.
Example of a MAP response:
 PM Audit
- 26** Record the MAP response.
- | If the MAP response | Do |
|--|---------|
| is REx Test Aborted | step 27 |
| is Load Corruption | step 29 |
| is Load Failed | step 29 |
| is any type of ringing generator failure | step 28 |
| is other than listed here | step 31 |
- 27** The LCMs C-side PM runs a routine exercise (REx) test. Wait until the REx test for the PM is complete. The REx test for the PM must finish before the REx test for the LCM can begin. If the REx test continues to abort, go to step 31.
- 28** Refer to the procedure *Clearing ringing generator problems* in this document. Complete the procedure and return to this step.
- | If | Do |
|----------------------------------|---------|
| the LCM critical alarm remains | step 31 |
| one LCM unit returns to service | step 41 |
| both LCM units return to service | step 42 |
- 29** To busy the LCM, type
>BSY PM
 and press the Enter key.

PM LCM
critical (continued)

30	To load the LCM, type >LOADPM PM and press the Enter key.	
	If the load	Do
	fails	step 35
31	passes	step 32
	To busy the LCM, type >BSY PM and press the Enter key.	
	To return the LCM to service, type >RTS PM and press the Enter key.	
32	If	Do
	the LCM does not return to service	Follow the instructions in the MAP response. Go to step 33.
	one LCM unit returns to service	step 41
	both LCM units return to service	step 42
33	To return the active LCM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
	If the unit	Do
	does not recover and the system generates a card list	step 34
	does not recover and the system does not generate a card list	step 40
	recovers	step 42

PM LCM
critical (continued)

At the equipment frame

- 34** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *LCE frame* for help to locate the card.

If the card	Do
is a 6X51, 6X52, or 6X53	step 35
is other than listed here	step 36

At the MAP terminal

- 35** To load the LCM unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where
 unit_no
 is the number (0 to 1) of the LCM unit

If the load	Do
passes	step 36
fails	step 40

- 36** To return the LCM unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
 unit_no
 is the number (0 to 1) of the LCM unit

If the unit	Do
does not return to service, and you did not replace all the cards that have faults on the list	step 37
does not return to service, and you replaced all the cards that have faults on the list	step 40
returns to service	step 42

PM LCM critical (continued)

At the equipment frame

- 37** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *LCE frame* to help locate the card.

If the card	Do
is a 6X51, 6X52, or 6X53 card	step 38
is other than listed here	step 39

At the MAP terminal

- 38** To load the LCM unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where
unit_no
is the number (0 to 1) of the LCM unit in use in step 37

If the load	Do
passes	step 39
fails	step 40

- 39** To return the LCM unit to service, type
>RTS UNIT unit_no
and press the Enter key.
where
unit_no
is the number (0 to 1) of the LCM unit

If the unit	Do
does not return to service and you did not replace all the cards that have faults on the list	step 37
does not return to service and you replaced all the cards that have faults on the list	step 40
returns to service	step 42

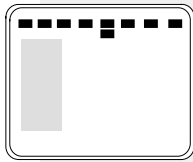
- 40** For additional help, contact the next level of support.

PM LCM
critical (end)

- 41** The LCM critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.
- 42** The procedure is complete.

PM LCM major

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCM	.	.	.	.
				M				

Indication

At the MTC level of the MAP display, an LCM (preceded by a number) appears under the PM header of the alarm banner. An M follows the LCM. The LCM indicates a major alarm for a line concentrating module (LCM). The number that precedes the LCM indicates the number of LCMs affected by the alarm. The alarm banner appears at the MTC level of the MAP. The preceding figure shows an alarm banner with an LCM major alarm.

Meaning

The LCM is in-service trouble (ISTb) because of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in-service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in-service

Result

Line drawers that are out of service affect call processing. Line drawers that are not out of service do not affect call processing.

Common procedures

Refer to the following common procedures:

- *Monitoring system maintenance*
- *Clearing ringing generator faults*

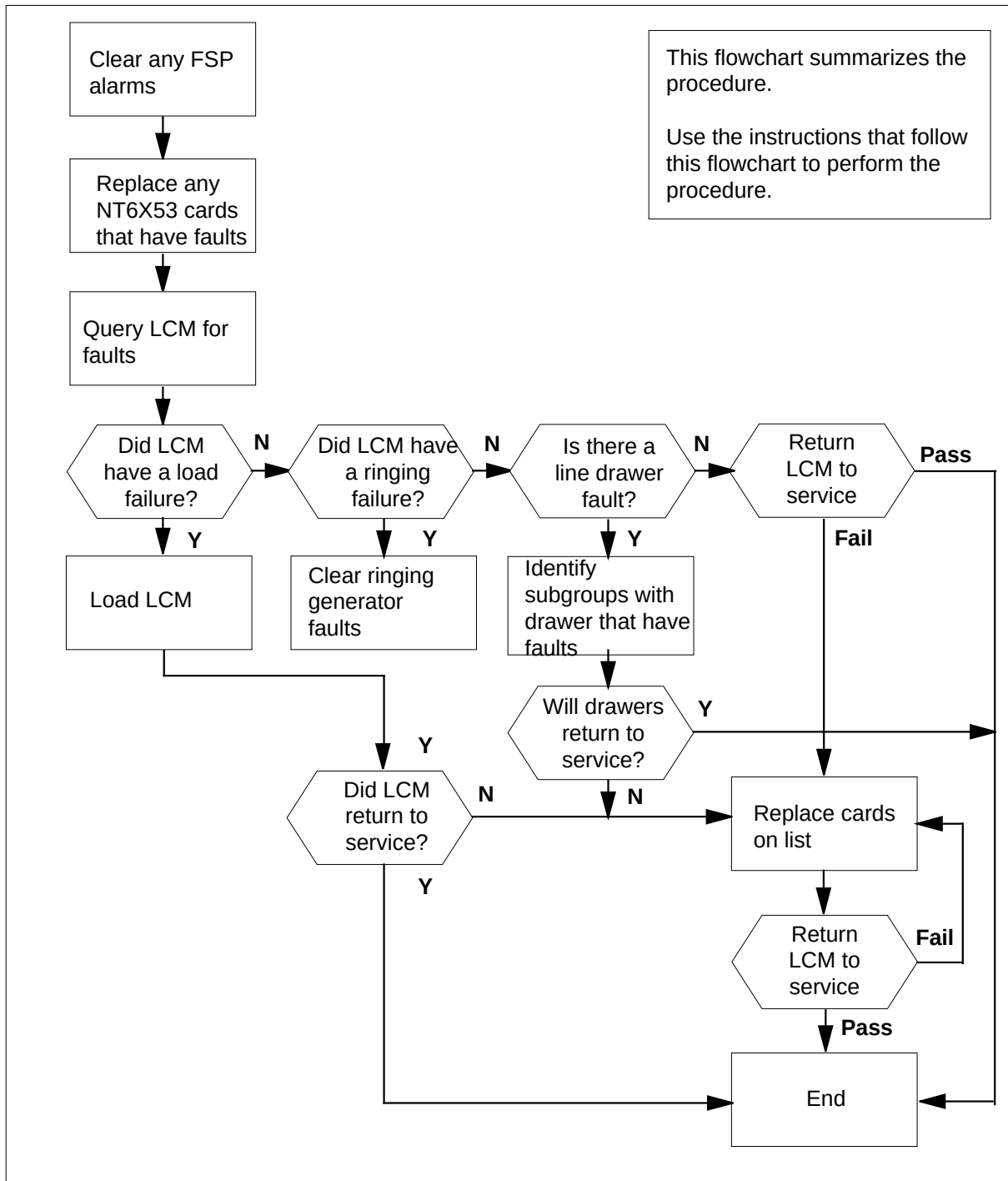
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

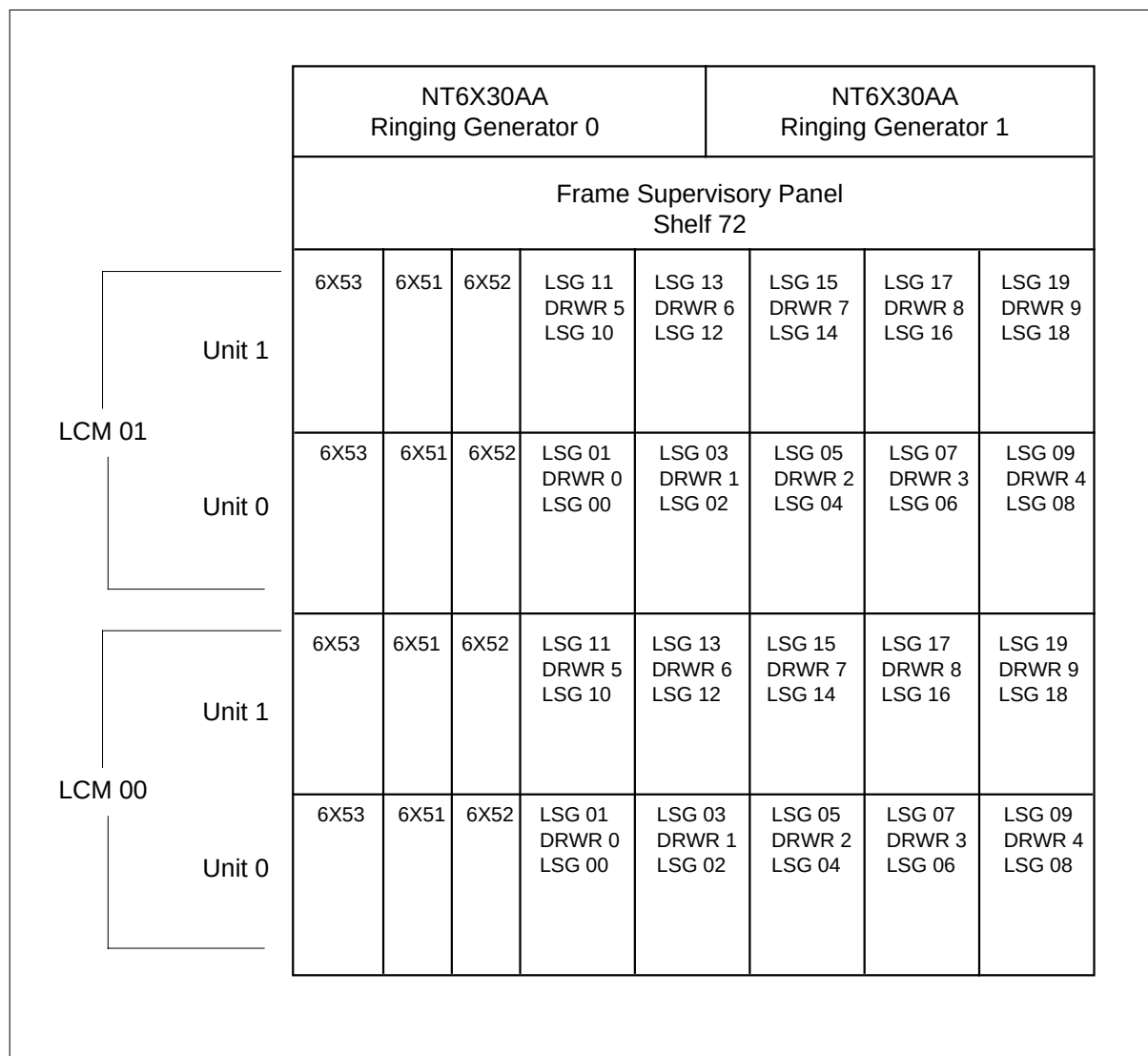
PM LCM major (continued)

Summary of clearing a PM LCM major alarm



PM LCM major (continued)

LCE frame



PM LCM major (continued)

Clearing a PM LCM major alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If	Do
an audible alarm rings	step 2
the M indicator at the alarm banner flashes	step 2
neither of the above conditions occur	step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LCMs, type

>DISP STATE ISTB LCM

and press the Enter key.

Example of a MAP response:

ISTb LCM: HOST 0 0

Note: If multiple LCMs are ISTb, select an LCM to work on.

Record the name and number of the ISTb LCMs.

- 4 Check the EXT header of the alarm banner.

If an FSP alarm	Do
is present	step 5
is not present	step 19

- 5 To locate the FSP alarm, type

>EXT; LIST FSP

PM LCM major (continued)

and press the Enter key.

Example of a MAP display:
FSPAISD

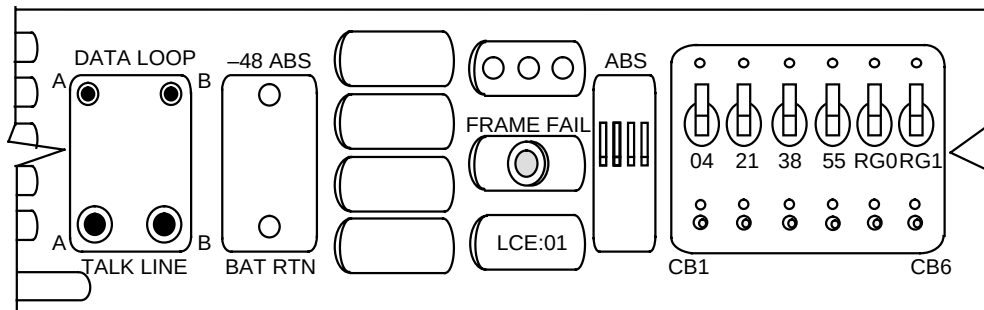
In this example, the alarm is an FSP alarm on Aisle D.

At the equipment aisle

- 6 Go to the aisle identified in step 5. The end aisle alarm is lit.

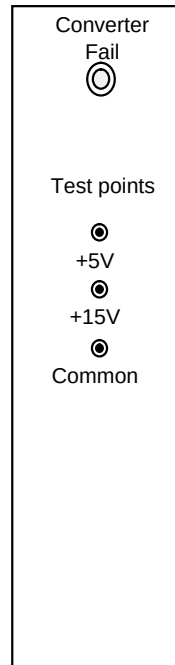
At the equipment frame

- 7 To identify the frame with the FSP alarm, check the frame fail lamp on the frame supervisory panel (FSP) of each frame. The frame with the FSP alarm has a lit frame fail lamp. The following figure shows an FSP with a lit fail lamp.



- 8 Identify the LCMs in the frame. Refer to the figure *LCE frame* for help.
- 9 Check the converter fail LED on each NT6X53 power converter card in the frame. Refer to the figure *LCE frame* for help. For help in checking the Converter Fail LED, refer to the following figure;

PM LCM major (continued)



If any LEDs	Do
are lit	step 10
are not lit	step 13

- 10** Note the LCM and LCM unit with the LED light on.
- 11** To post the in-service trouble LCM and identify the location of this LCM, type
>POST LCM site frame_no lcm_no;QUERYPM
 and press the Enter key.

where

site

is <string> of the LCM you recorded in step 3

frame_no

is the number (00 to 511) of the LCM you recorded in step 3

lcm_no

is the number (00 to 255) of the LCM you recorded in step 3

Example of a MAP display:

PM LCM major (continued)

```

LCM HOST 00 0 ISTb Links_OOS: CSide 1 PSide 0
Unit0: SysB /RG 0
Unit1: InSv /RG 0
11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
.. .. .. .. .. .. .. .. .. ..
QueryPM
PM Type: LCM Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 64k , Unit 1: 64K
Loadnames: LCMINV - LCM01D , Unit0: LCM01D , Unit1: LCM01D
LCM HOST 00 0 is included in the list of LCM types
scheduled for a REX test.
ast REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCM 00 0 6X04AA
Services: NEUTRAL
Next LCM for REX

```

- 12** Determine if the LCM is the same as the LCM you identified in step 10.

If the LCM	Do
is different	step 13
is the same	step 14

- 13** Clear the FSP alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this step.

- 14** To busy the LCM unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number (0 to 1) of the LCM unit

At the equipment frame

- 15** Power down the NT6X53 power converter card in the LCM unit that you are working on. Switch off the circuit breaker that supports the shelf. For help, refer to the figure "LCE frame".
- 16** Change the NT6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 17** Turn on NT6X53 power converter card in the LCM unit. Switch on the circuit breaker that supports the shelf. For help, refer to the figure *LCE frame*.
- 18** To load the LCM unit, type
- >LOADPM UNIT unit_no**

PM LCM major (continued)

and press the Enter key.

where

unit_no
is the number (0 to 1) of the LCM unit

If the load	Do
fails, and the system generates a card list	step 34
fails, and the system did not generate a card list	step 38
passes	step 33

- 19** To post the LCM, type
>POST LCM site frame_no lcm_no
 and press the Enter key.
 where
site
 is <string> of the LCM you recorded in step 3
frame_no
 is the number (00 to 511) of the LCM you recorded in step 3
lcm_no
 is the number of the LCM you recorded in step 3

Example of a MAP display:

```
LCM  HOST 01 1  ISTb  Links_00S:  CSide 1, PSide 0
Unit0:  SysB           /RG 0
Unit1:  InSv           /RG 1
```

If a Mtce flag	Do
appeared next to either unit	step 20
did not appear	step 21

- 20** Proceed to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.

If the major alarm	Do
remains	step 21
changes	step 37
clears	step 39

PM LCM major (continued)

- 21 To query the LCM for fault indications, type

>QUERYPM FLT

and press the Enter key.

Example of a MAP response:

PM Audit

- 22 Record the MAP response.

If the MAP response	Do
is REx Test Aborted	step 23
is Load Corruption	step 30
is Load Failed	step 30
is Drawer Fault	step 25
is any type of ringing generator failure	step 24
is other than listed here	step 32

- 23 The C-side PM of the LCM also runs an REx test. Wait until the REx test of the PM is complete. The REx test of the PM must finish before the REx test of the LCM can begin. If the REx test continues to abort, go to step 32.

- 24 Refer to the procedure "How to clear ringing generator faults" in this document. Complete the procedure and return to this point.

If the LCM	Do
major alarm continues	step 32
returns to service	step 39

- 25 Check the MAP display for a line drawer that has faults. Letters that appear under the line subgroup numbers that associate with a physical drawer indicate a drawer that has faults.

Example of a MAP display:

```
LCM  HOST 00 0  ISTb  Links_00S:  CSide 0 PSide 0
Unit0:   InSv      /RG 0
Unit1:   ISTb      /RG 0

                11  11  11  11  11  RG: Pref 0 InSv
Drwr:  01  23  45  67  89  01  23  45  67  89      Stby 1 InSv
      ..  SS  ..  ..  ..  ..  ..  ..  ..  ..
```

PM LCM major (continued)

- 26** To busy one line subgroup that associates with the drawer that has faults, type
>BSY DRWR lsg_no
 and press the Enter key.
where

lsg_no
 is the number of the line subgroup you identified in step 25.

- 27** To return the line subgroup to service, type
>RTS DRWR lsg_no
 and press the Enter key.
where

lsg_no
 is the number of the line subgroup

If the RTS command	Do
fails and the system generates a card list	step 28
fails and the system does not generate a card list	step 38
passes, the LCM major alarm remains, and you worked on both line subgroups	step 21
passes, the LCM major alarm remains, and you did not work on the other line subgroup	Go to step 26 and work on the other line subgroup.
passes and the LCM major alarm clears	step 39

At the equipment frame

- 28** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.
- 29** To return the line subgroup to service, type
>RTS DRWR lsg_no
 and press the Enter key.
where

PM LCM major (continued)

lsg_no is the number of the line subgroup	
If the RTS command	Do
fails and you did not replace all the cards on the list	step 28
fails and you replaced all the cards on the list, or the system does not generate a card list	step 38
passes, the LCM major alarm remains, and you worked on both line subgroups	step 21
passes, the LCM major alarm remains, and you did not work on the other line subgroup	Go to step 26 and work on the other line subgroup.
passes and the LCM major alarm clears	step 39
30 To busy the LCM, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
31 To load the LCM, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
If the load	Do
fails, and the system generates a card list	step 34
fails, and the system does not generate a card list	step 38
passes	step 33

PM LCM
major (continued)

- 32** To busy the LCM, type
>BSY UNIT unit_no
 and press the Enter key.
where

unit_no
 is the number (0 to 1) of the LCM unit

- 33** To return the LCM to service, type
>RTS UNIT unit_no
 and press the Enter key.
where

unit_no
 is the number (0 to 1) of the LCM unit

If the RTS command	Do
fails and the system generates a card list	step 34
fails and the system does not generate a card list	step 38
succeeds and the LCM alarm clears	step 39

At the equipment frame

- 34** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. For help, refer to figure *LCE frame* at the start of this module.

If you	Do
replace a NT6X51, NT6X52, or NT6X53 card	step 35
replace any other card	step 36

At the MAP terminal

- 35** To load the LCM unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where

PM LCM

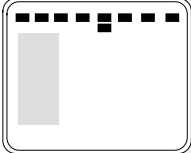
major (end)

unit_no
is the number (0 to 1) of the LCM unit

If the load		Do
fails, the system generates a card list, and you do not replace all the cards on the list of cards that have faults		step 34
fails, the system generates a card list, and you replace all the cards on the list of cards that have faults		step 38
fails and the system did not generate a card list		step 38
passes		step 36
36	To return the LCM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
If the RTS command		Do
fails, the system generates a card list, and you did not replace all the cards on the list of cards that have faults		step 34
fails, and the system generates a card list, and you replaced all the cards on the list of cards that have faults		step 38
fails and the system did not generate a card list		step 38
succeed and the LCM major alarm clears		step 39
37	The LCM major alarm changed to another type of alarm. Refer to the correct procedure to clear the alarm. Go to step 39.	
38	For additional help, contact the next level of support.	
39	The procedure is complete.	

PM LCM minor

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.		1LCM	.	.	.		.

Indication

At the MTC level of the MAP terminal, LCM appears under the PM header of the alarm banner. The LCM indicates a minor alarm for a line concentrating module (LCM). The number that precedes LCM indicates the number of LCMs that the alarm affects. The preceding figure shows an alarm banner with an LCM minor alarm.

Meaning

The LCM is in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb.
- one unit is ISTb and one unit is in service.
- one unit is ISTb and one unit is manual busy.
- one unit is in service and one unit is manual busy.
- both units are in service with some C-side links out of service.

Result

The alarm does not affect service.

Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*
- *Clearing ringing generator faults*

Do not go to the common procedure unless the step-action procedure directs you to go.

PM LCM

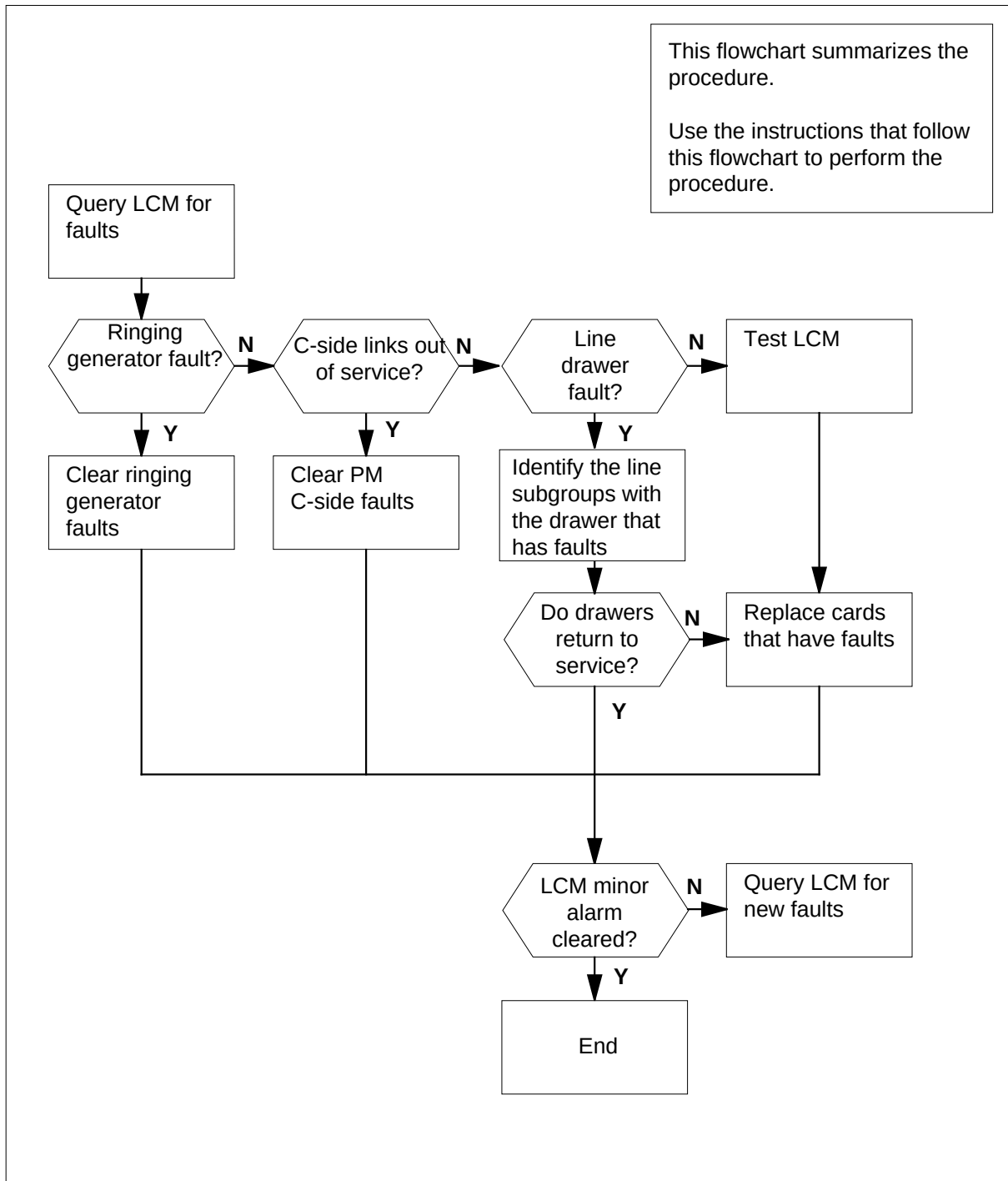
minor (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

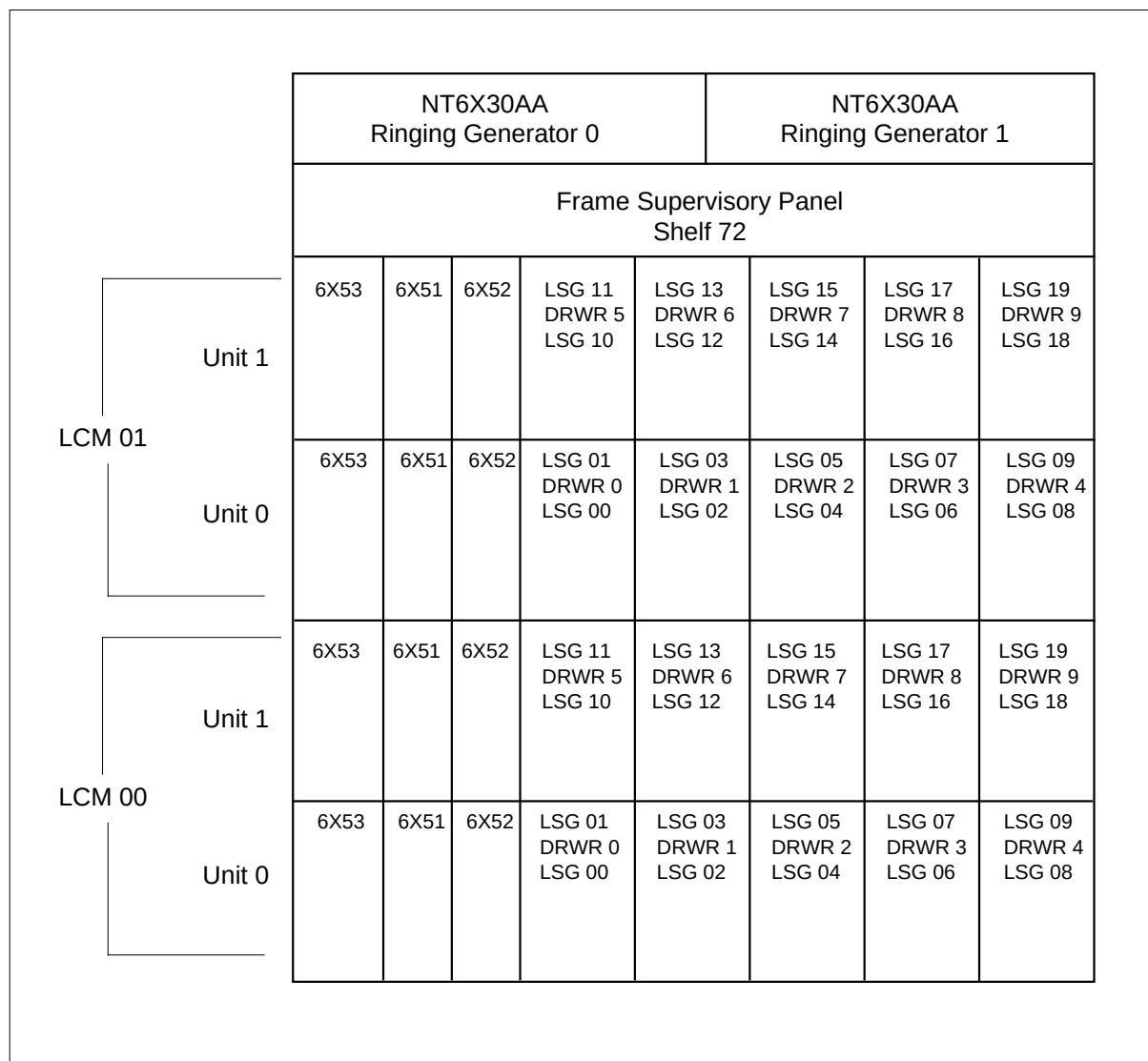
PM LCM minor (continued)

Summary of clearing a PM LCM minor alarm



PM LCM minor (continued)

LCE frame



PM LCM minor (continued)

Clearing a PM LCM minor alarm

At the MAP display.

- 1 To access the PM level of the MAP display, type

>MAPCI; MTC; PM

and press the Enter key.

Example MAP response:

PM	SysB 1	ManB 3	OffL 5	CBSy 7	ISTb 6	InSv 12

If an audible alarm

Do

rings

step 2

does not ring

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LCMs, type

>DISP STATE ISTB LCM

and press the Enter key.

Example MAP response:

ISTb LCM: HOST 0 0

Note: If multiple LCMs are ISTb, select an LCM on which to work.
Repeat this procedure for each LCM that is ISTb.

Record the name and number of the ISTb LCMs.

- 4 To post the LCM, type

>POST LCM site frame_no lcm_no

and press the Enter key.

where

site

is <string> of the LCM that you recorded in step 3

frame_no

is the number (00 to 511) of the LCM that you recorded in

step 3

PM LCM minor (continued)

lcm_no

is the number (0 to 255) of the LCM that you recorded in step 3

Example of a MAP display:

```
LCM  HOST 00 0  ISTb  Links_00S:  CSide 1 PSide 0
Unit0:   ISTb      /RG 0
Unit1:   InSv      /RG 0
                                     11  11  11  11  11  RG: Pref 0 InSv
Drwr:  01  23  45  67  89  01  23  45  67  89      Stby 1 InSv
      ..  --  --  --  --  ..  --  --  --  --
```

If a Mtce flag

Do

appears next to either unit

step 5

does not appear

step 6

5

Go to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.

If the LCM minor alarm

Do

remains

step 6

changes

step 20

clears

step 22

6

To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

Note: Multiple causes are possible for the in-service trouble condition of an LCM. The LCM and the LCM units remain ISTb until all the in-service trouble conditions clear.

If the MAP response

Do

is any type of ringing generator
fault

step 7

is REx Test Aborted

step 8

is C-side links out of
service

step 9

is Drawer Fault

step 10

is Diagnostic Failed

step 16

PM LCM minor (continued)

	If the MAP response	Do
	is other than listed here	step 16
7	Go to the common procedure <i>Clearing ringing generator faults</i> in this document. Complete the procedure and return to this point.	
	If the LCM minor alarm	Do
	continues	step 6
	clears	step 22
8	The C-side PM of the LCM runs a routine exercise (REx) test. Wait until the REx test for the PM is complete. The REx test for the PM must finish before the REx test for the LCM can start. If the REx test continues to abort, go to step 21.	
9	Go to the common procedure <i>Clearing PM C-side faults</i> in this document. Complete the procedure and return to this point.	
	If the LCM minor alarm	Do
	continues	step 6
	clears	step 22
10	Check the MAP display for a line drawer. Line subgroup numbers associate with the physical drawer. Letters that appear under the line subgroup numbers for the drawer indicate a drawer that has faults. <i>Example of a MAP display:</i>	
	<pre> LCM HOST 00 0 ISTb Links_OOS: CSide 0 PSide 0 Unit0: InSv /RG 0 Unit1: ISTb /RG 0 11 11 11 11 11 RG: Pref 0 InSv Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv .. II </pre>	
11	To busy one line subgroup for the drawer that has faults, type >BSY DRWR lsg_no and press the Enter key. <i>where</i> lsg_no is the number of the line subgroup that you identified in step 10 <i>Example of a MAP response:</i> <pre> LCM HOST 00 0 Drwr 2 will be taken out of service. Please confirm ("YES" or "NO"): </pre>	

PM LCM**minor** (continued)

- 12** To confirm the command, type
>YES
and press the Enter key.

- 13** To return the line subgroup to service, type
>RTS DRWR lsg_no
and press the Enter key.

where

lsg_no
is the number of the line subgroup

If the RTS command	Do
fails and the system generates a card list	step14
fails and the system does not generate a card list	step21
passes, the LCM minor alarm remains, and you worked on both line subgroups	step 6
passes, the LCM minor alarm remains, and you did not work on the other line subgroup	Go to step 11 and work on the other line subgroup.
passes and the LCM minor alarm clears	step 22

At the equipment frame

- 14** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 15.

- 15** To return the line subgroup to service, type
>RTS DRWR lsg_no
and press the Enter key.

where

lsg_no
is the number of the line subgroup

If the RTS command	Do
fails and you did not replace all the cards on the list	step 14

PM LCM minor (continued)

	If the RTS command	Do
	fails and you replaced all the cards on the list, or the system did not generate a card list	step 21
	passes, the LCM minor alarm remains, and you worked on both line subgroups	step 6
	passes, the LCM minor alarm remains, and you did not work on the other line subgroup	Go to step 11 and work on the other line subgroup
	passes and the LCM minor alarm clears	step 22
16	To test the LCM unit, type >TST UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
	If the TST command	Do
	fails, and the system generates a card list	step 17
	fails, and the system does not generate a card list	step 21
	passes and the alarm clears	step 22
17	To busy the LCM unit for the alarm, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LCM unit	
18	Replace the first or next card on the list. Refer to the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and go to step 19.	
19	To return the LCM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i>	

PM LCM minor (end)

unit_no
is the number (0 to 1) of the LCM unit

	If the RTS command	Do
	fails, and you did not replace all the cards on the list	step 18
	fails, and you replaced all the cards on the list	step 21
	passes	step 22
20	The LCM minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Complete the procedure and go to step 22.	
21	You need additional help to clear this alarm. Contact the next level of maintenance. Describe in detail the steps you performed to clear this alarm.	
22	The procedure is complete. If additional alarms appear, proceed to the correct alarm clearing procedure.	

PM LCM ringing generator (LRG) critical

Alarm display

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LRG *C*	.	.	.	.	.

Indication

An nLRG indicates a critical alarm that involves a line concentrating module (LCM) ringing generator (RG). The MAP display lists nLRG under the PM subsystem with a *C* beneath the nLRG at the MTC level. The *C* indicates a critical alarm class.

Meaning

Both ringing generator units are in the in-service trouble (ISTb) state.

Result

If both ringing generator units fail, automatic switching to an active ringing generator (SwRG) unit will not occur. The result is that the system cannot generate ringing. This problem affects subscriber service.

Common procedures

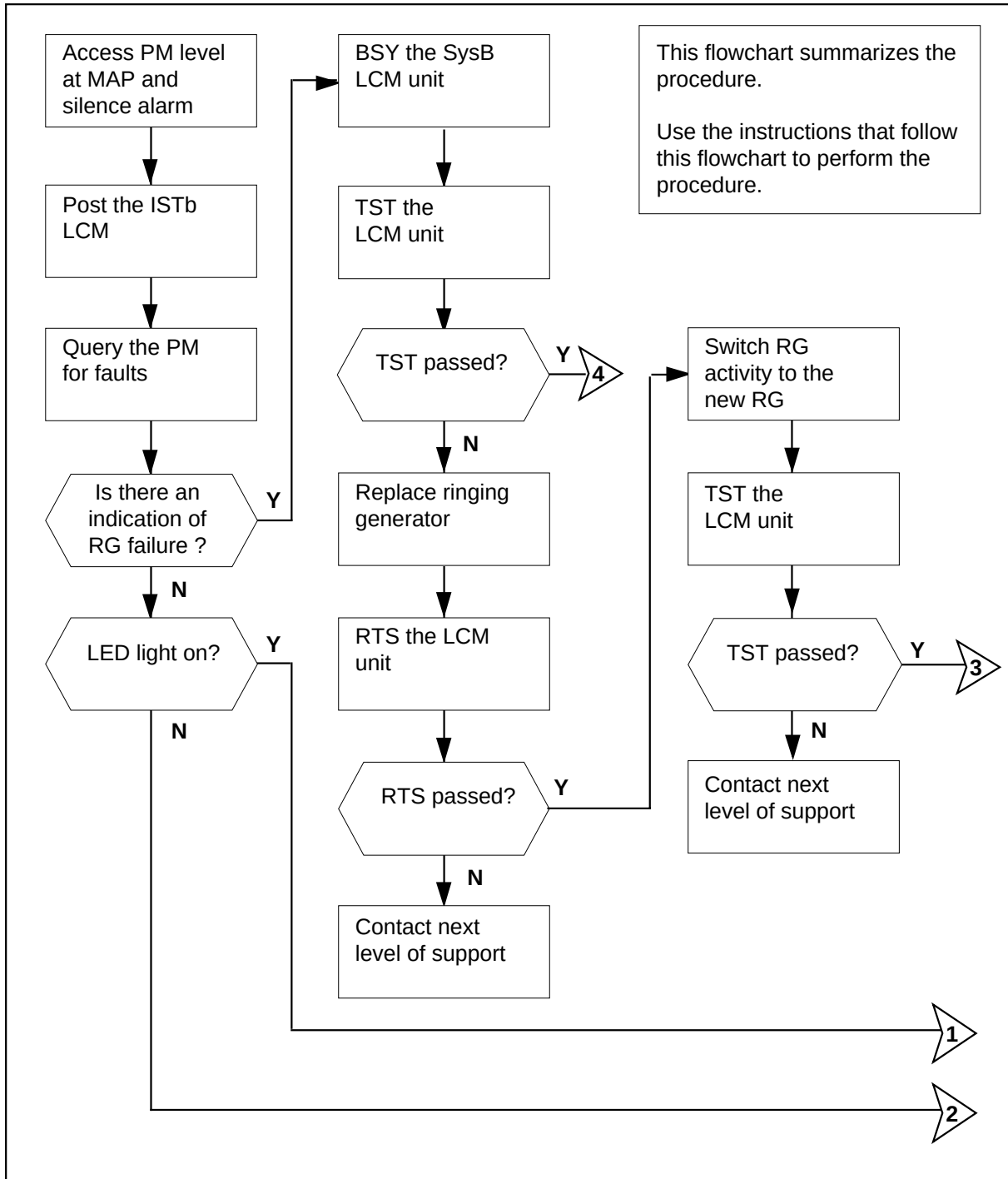
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

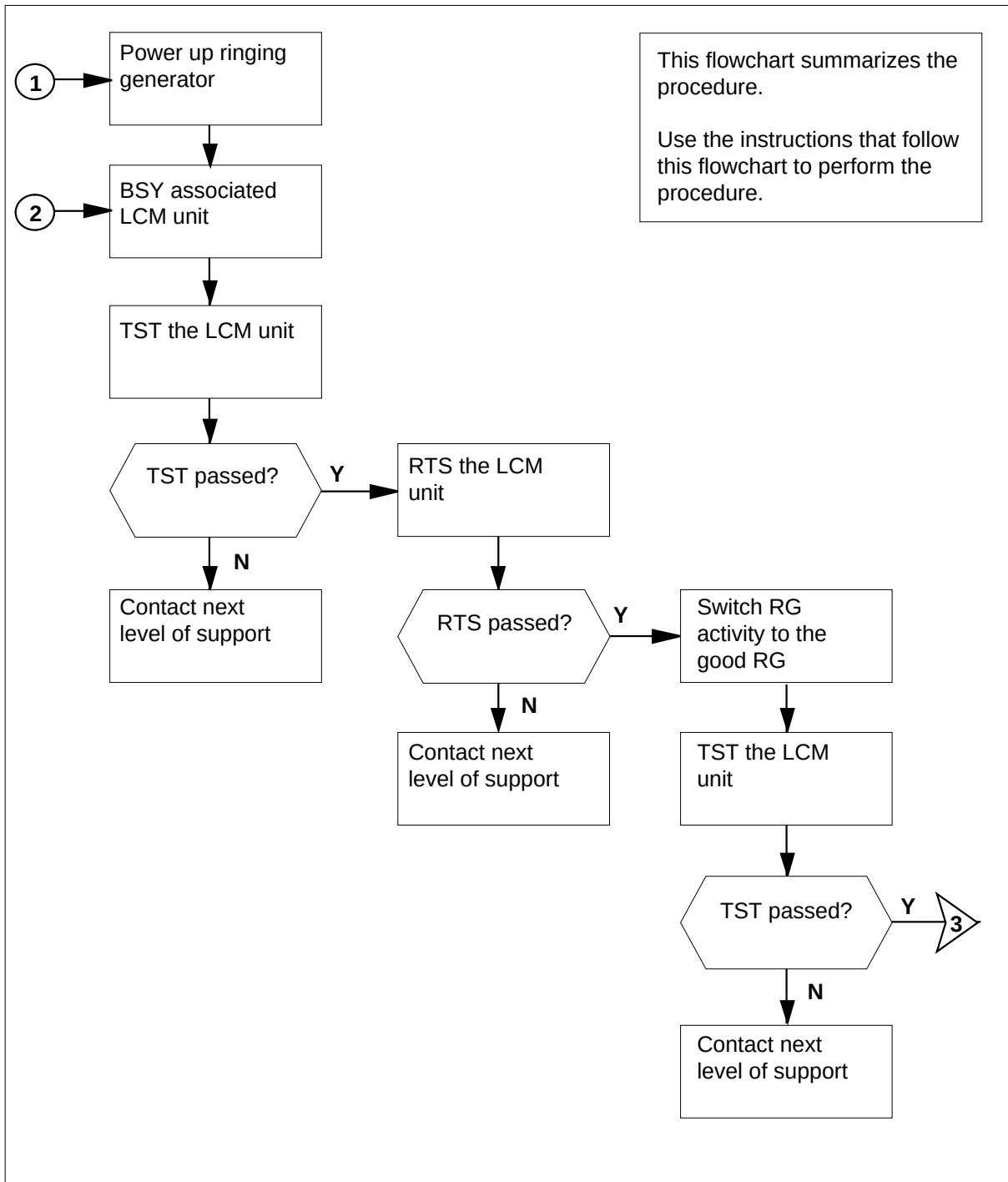
PM LCM ringing generator (LRG) critical (continued)

Summary of clearing an PM LCM ringing generator (LRG) critical



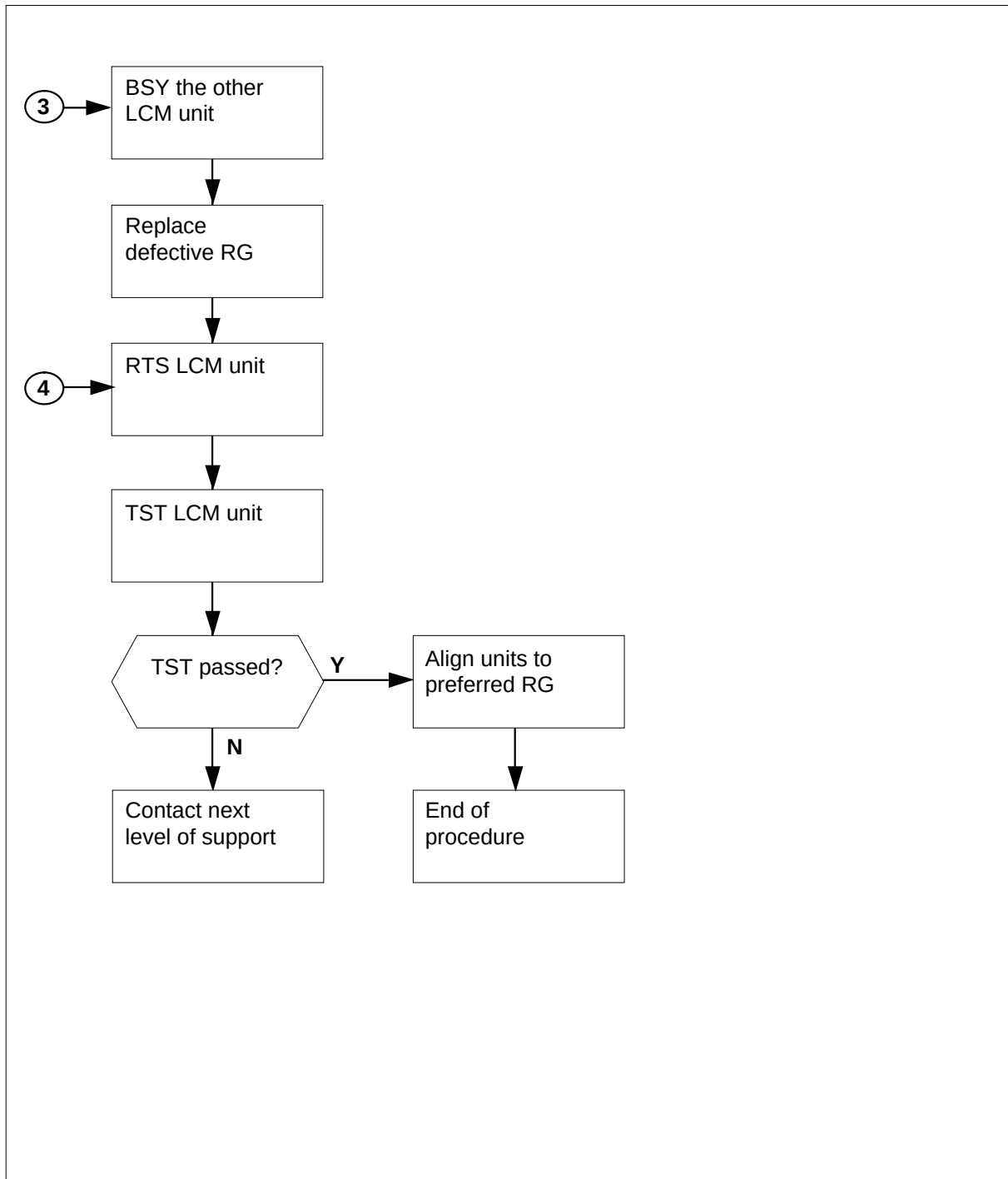
PM LCM ringing generator (LRG) critical (continued)

Summary of clearing an PM LCM ringing generator (LRG) critical (continued)



PM LCM ringing generator (LRG) critical (continued)

Summary of How to clear PM LCM ringing generator (LRG) critical (continued)



PM LCM ringing generator (LRG) critical (continued)

Clearing an PM LCM ringing generator (LRG) critical

ATTENTION

You enter this procedure only from a PM system level alarm clearing procedure. You enter this procedure from the step of the procedure that identified a PM alarm for an LCM ringing generator fault.

At the MAP terminal

- 1 To silence the alarm, type
>MAPCI;MTC;PM;SIL
and press the Enter key.
- 2 To identify the damaged line concentrating module (LCM) or enhanced LCM (LCME), type
>DISP STATE LCM ISTB
and press the Enter key.

or

>DISP STATE ISTB LCME
and press the Enter key.

Example of an LCM MAP response:

ISTb: HOST 00 0

- 3 To post the ISTb LCM(E) identified in step 2, type
>POST LCM(E) ISTB
and press the Enter key.

Example of an LCM MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	0	2	0	1	12
LCM	0	0	2	0	1	9

LCM	HOST	00	0	ISTb	Links_OOS:	CSide	0	PSide	0
Unit0:	SysB				/RG:	0			
Unit1:	ISTb				/RG:	0			

					11	11	11	11	11	RG:Pref	0	ISTb
Drwr:	01	23	45	67	89	01	23	45	67	89	Stby	1
	..	..	..	..	..	..	..	..	..	..		

PM LCM ringing generator (LRG) critical (continued)

- 4 To check for fault indicators, type

>QUERYPM FLT

and press the Enter key.

Example of a MAP response:

```
LCM  UNIT 0  Inservice troubles Exist:
Ringing Generator Failure:Ring Generator ANI/COIN Fault
LCM  UNIT 1  Inservice Troubles Exist:
Ringing Generator Failure:Ring Generator in Excess load
```

At the LCE frame/LCME cabinet

- 5 Make a visual inspection of the ringing generators. Check to see if the LED light is ON.

If the LED light	Do
is ON	step 6
is OFF	step 10

- 6 Power on the ringing generator.

- 7 Use the following table to determine the next step in the power-on procedure.

If the equipment housing	Do
is in an LCE frame	step 8
is in an LCME cabinet	step 9

At the LCE frame

- 8 To power on the ringing generators, set the following circuit breakers (CBs) to the ON position.

RG 0 corresponds to LCM unit 0 (CB5)

RG 1 corresponds to LCM unit 1 (CB6)

At the LCME cabinet

- 9 To power on the ringing generators, set the following CB to the ON position.

RG 0 corresponds to LCME unit 0 (CB1)

RG 1 corresponds to LCME unit 1 (CB10)

PM LCM ringing generator (LRG) critical (continued)

At the MAP terminal

- 10** To manually busy the system busy (SysB) LCM(E) unit identified in step 2, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the SysB LCM(E) unit (0 or 1)

- 11** To test the manual busy (ManB) LCM(E) unit, type

>TST UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the ManB LCM(E) unit (0 or 1)

If a generated card list	Do
is present	step 12
is not present	step 23

- 12** Check the card list that results from step 11.

Example of a MAP response:

SITE	FLR	RPOS	BAY_ID	SHF	DESCRIPTION	SLOT	EQPEC
HOST	01	A00	LCE 00	72	LCM:00 0	01	6X60
HOST	01	A00	LCE 00	21	LCM:00 0	04	6X51
HOST	01	A00	LCE 00	72	LCM:00 0	11	6X60
HOST	01	A00	LCE 00	04	LCM:00 0	04	6X51

- 13** Go to step 22 to replace the card that has faults.

- 14** To return the LCM(E) unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LCM(E) unit (0 or 1) you want to RTS

If the RTS command	Do
passed	step 17
failed	step 15

PM LCM ringing generator (LRG) critical (continued)

- 15** To load the LCM(E) from the CM again, type

>LOADPM UNIT unit_no CC

and press the Enter key.

where

unit_no

is the LCM(E) unit (0 or 1) you want to load

If the LOADPM command	Do
passed	step 16
failed	step 23

- 16** To return the LCM(E) unit to service, type

>RTS UNIT unit_no

and press Enter.

where

unit_no

is the number of the LCM(E) unit (0 or 1) you want to return to service (RTS)

If the RTS command	Do
passed	step 17
failed	step 23

- 17** To align RG activity to the new RG, type

>SWRG UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM(E) unit (0 or 1) for the new RG

Example of an LCM MAP response:

LCM HOST 00 1 Unit 1 SWRG Passed

If the SWRG command	Do
passed, and RG activity must change for the other unit	step 18
passed, and RG activity is acceptable for both units	step 19
failed	step 23

PM LCM ringing generator (LRG) critical (continued)

18 Repeat step 17 for the other LCM(E) unit.

19 To test the new RG, type

>TST UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LCM(E) unit (0 or 1) for the new RG.

Example of an LCM MAP response:

LCM HOST 00 0 Unit 1 InSvce Tests Initiated

LCM HOST 00 0 Unit 1 Tst Passed

If the TST command	Do
passed	step 20
failed	step 23

20 Repeat step 10 through step 19 for the other LCM(E) unit. Go to step 21.

21 To align RG activity to the preferred RG, type

>SWRG UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM(E) unit (0 or 1) for the new RG

Example of an LCM MAP response:

LCM HOST 00 0

InSv Links OOS: Cside 0 Pside 0

Unit 0: InSv /RG:0Unit 1:

InSv /

RG:0 11 11 11 11 11

RG: Pref 0 InSvDrwr: 01 23 45 67 89 01 23 45 67 89

Stby 1 InSv

Note: Repeat this step until both units of the LCM are on the preferred RG.

If the SWRG command	Do
passed	step 24
failed	step 23

22 Go to *Card Replacement Procedures*. Replace the first card on the list. Complete the card replacement procedures. Go to step 14 of this procedure.

23 For additional help, contact the next level of support.

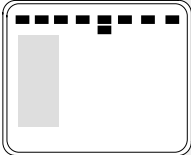
PM LCM ringing generator (LRG)

critical (end)

- 24** The procedure is complete.
If other alarms appear, refer to the correct alarm clearing procedures for the indicated alarms.

PM LCME major

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LCME	.	.	.		.
					M					

Indication

At the MTC level of the MAP display, LCME appears under the PM header of the alarm banner. An M follows the LCME. The LCME indicates a line concentrating module enhanced (LCME) major alarm. The number that precedes the LCME indicates the number of LCMEs that the alarm affects. The previous figure shows an alarm banner with an LCME major alarm.

Meaning

The LCME is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb.
- one unit is system busy and one unit is in service.
- one unit is C-side busy and one unit is ISTb.
- one unit is C-side busy and one unit is in service.

Result

The alarm does not affect service.

Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing ringing generator faults*

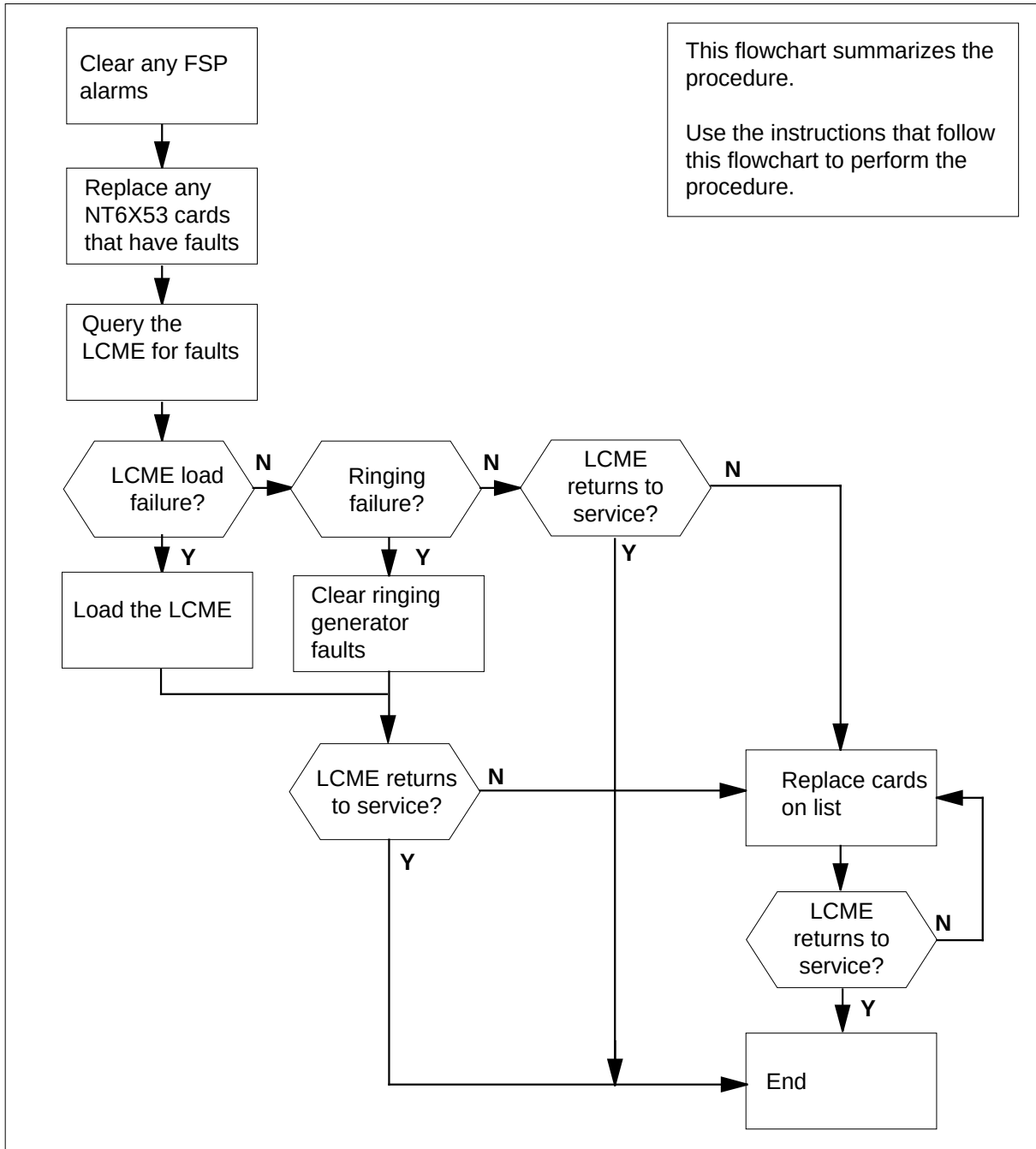
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

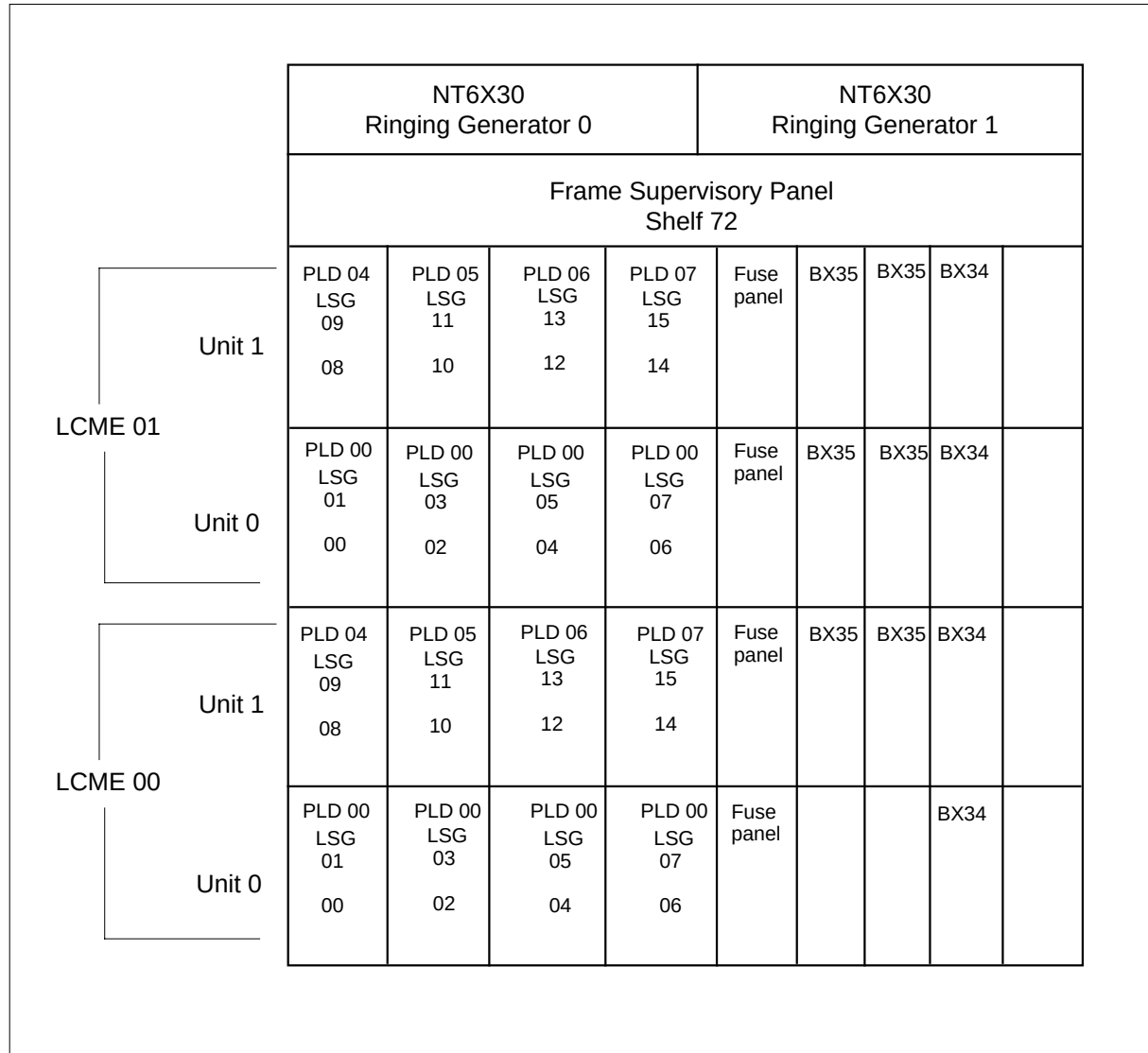
PM LCME major (continued)

Summary of Clearing a PM LCME major alarm



PM LCME major (continued)

LCME frame



PM LCME
major (continued)

Clearing a PM LCME major alarm

At the MAP display

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If			Do			
an audible alarm rings			step 2			
the M indicator at the alarm banner flashes			step 2			
other than listed here			step 3			

- 2 To silence the alarm, type
>SIL
and press the Enter key.
- 3 To display all the ISTb LCMEs, type
>DISP STATE ISTB LCME
and press the Enter key.

Example of a MAP:

ISTb LCME: HOST 0 0

Note: If multiple LCMEs are ISTb, select an LCME to work on.
Record the number of the LCMEs.

- 4 Check the EXT header of the alarm banner.

If an FSP alarm		Do
is present		step 5
is not present		step 20

- 5 To locate the FSP alarm, type
>EXT; LIST FSP
and press the Enter key.

PM LCME major (continued)

Example of a MAP response:
FSPAISD

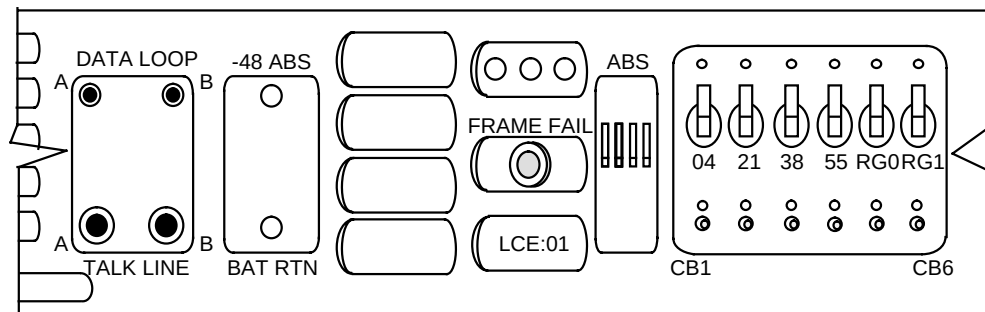
In this example, the alarm is an FSP alarm on aisle D.

At the equipment aisle

- 6 Go to the aisle that you identified in step 5. The end aisle alarm is lit.

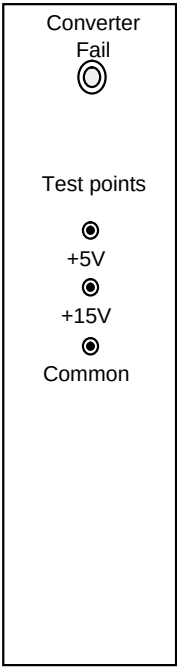
At the equipment frame

- 7 Identify the frame with the FSP alarm. To identify this frame, check the frame fail lamp on the frame of each frame supervisory panel (FSP). The frame with the FSP alarm has a lit frame fail lamp. The following figure shows an FSP with a lit frame fail lamp.



- 8 Identify the LCMEs in the frame. Refer to the "LCME frame" figure for help.
- 9 Check the converter fail LED on each 6X53 power converter card in the frame. Refer to the "LCME frame" figure for help. Refer to the following figure for help to check the converter fail LED.

PM LCME
major (continued)



If any LEDs	Do
are lit	step 10
are not lit	step 14

- 10
- Note the LCME with the LED light on.
- 11
- To post the system busy LCME and identify the location of the LCME, type
>PM; POST LCME site frame_no lcme_no;QUERYPM
and press the Enter key.
where
site
is <string> of the LCM you recorded in step 3
frame_no
is the number (00 to 511) of the LCM you recorded in step 3
lcme_no
is the number (00 to 255) of the LCM you recorded in step 3
Example of a MAP response:

PM LCME major (continued)

```

LCME HOST 00 0 ISTb Links_00S: CSide 17 PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact InSv /RG 0
          11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 Stby 1 InSv
      .. -- -- -- -- .. -- --
QueryPM
PM Type: LCME Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 256k , Unit 1: 256K
Loadnames: LCMEINV - CCC , Unit0: LCME01D , Unit1: LCME01D
LCME HOST 00 0 is included in the list of LCME types
          scheduled for a REX test.
Last REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCME 00 0 6X04AA
Services: NEUTRAL
Next LCME for REX

```

	If a Mtce flag	Do
	appears next to either unit	step 12
	does not appear	step 13
12	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the major alarm	Do
	remains	step 13
	changes	step 36
	clears	step 38
13	Determine if the LCME is the same as the LCME that you identified in step 10.	
	If the LCME 7	Do
	is different	step 14
	is the same	step 15
14	Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.	

PM LCME

major (continued)

- 15 To busy the LCME, type
>BSY UNIT unit_no
and press the Enter key.
where
unit_no
is the number (0 to 1) of the LCME unit

At the equipment frame

- 16 Power down the 6X53 power converter card in the LCME unit that you are working on. Switch off the circuit breaker that supports the shelf of this LCME. Refer to the diagram in step 7 for help.
- 17 Change the 6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 18 Power up the 6X53 power converter card in the LCME unit that is in use. To power up the card, switch on the circuit breaker that supports the shelf of the LCME unit. Refer to the diagram in step 7 for help.
- 19 To load the LCME unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where
unit_no
is the number (0 to 1) of the LCME unit

If the load	Do
passes	step 29
fails	step 37

- 20 To post the LCME, type
>POST LCME lcme_no
and press the Enter key.
where
lcme_no
is the number (0 to 255) of the LCME that you recorded in step 3

Example of a MAP response:

```
LCME  HOST 01 1  SysB  Links_00S:  CSide 17, PSide 0
Unit0:   Act  SysB      /RG 0
Unit1:   Inact      InSv    /RG 1
```

If a Mtce flag	Do
appears next to either unit	step 21

PM LCME major (continued)

	If a Mtce flag	Do
	does not appear	step 22
21	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the major alarm	Do
	remains	step 22
	changes	step 36
	clears	step 38
22	To query the LCME for fault indications, type >QUERYPM FLT and press the Enter key. <i>Example of a MAP response:</i> PM Audit	
23	Record the MAP response.	
	If the MAP response	Do
	is REx Test Aborted	step 24
	is Load Corruption	step 26
	is Load Failed	step 26
	is any type of ringing generator failure	step 25
	is other than listed here	step 28
24	The C-side PM for the LCME runs a REx test. Wait until the REx test for the PM is complete. The REx test for the PM must finish before the REx test for the LCME can start. If the REx test continues to abort, go to step 26.	
25	Refer to the procedure <i>Clearing ringing generator faults</i> in this document. Complete the procedure and return to this point.	
	If the LCME	Do
	major alarm continues	step 28
	returns to service	step 38
26	To busy the LCME unit, type >BSY UNIT unit_no	

PM LCME major (continued)

- and press the Enter key.
- 27 To load the LCME, type
>LOADPM UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number (0 to 1) of the LCME unit

If the load	Do
fails	step 37
passes	step 29

- 28 To busy the LCME unit, type
>BSY UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number (0 to 1) of the LCME unit

- 29 To return the LCME unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number (0 to 1) of the LCME unit

If the RTS command	Do
fails and the system generates a card list	step 30
fails and the system did not generate a card list	step 37
passes and the LCME major alarm clears	step 38

At the equipment frame

- 30 Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LCME frame" for help.

If you	Do
replace a BX35, BX34, or 6X53 card	step 31

**PM LCME
major (continued)**

If you	Do
replace other than listed here	step 32

At the MAP display

- 31** To load the LCME unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where

unit_no
 is the number (0 to 1) of the LCME unit

If the load	Do
passes	step 32
fails	step 37

- 32** To return the LCME unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where

unit_no
 is the number (0 to 1) of the LCME unit

If the RTS command	Do
fails and you did not replace all the cards on the list of cards that have faults	step 33
fails and you replaced all the cards on the list of cards that have faults	step 37
passes and the LCME major alarm clears	step 38

At the equipment frame

- 33** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LCME frame" for help.

If you replace	Do
replace a BX35, BX34, or 6X53 card	step 34
replace other than listed here	step 35

PM LCME
major (end)

At the MAP display

- 34** To load the LCME unit, type
>LOADPM UNIT unit_no
and press the Enter key.

where

unit_no
is the number (0 to 1) of the LCME unit

If the load	Do
passes	step 35
fails	step 37

- 35** To return the LCME unit to service, type
>RTS UNIT unit_no
and press the Enter key.

where

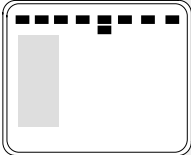
unit_no
is the number (0 to 1) of the LCME unit

If the RTS command	Do
fails and you did not replace all the cards on the list of cards that have faults	step 33
fails and you replaced all the cards on the list of cards that have faults	step 37
succeeds and the LCME major alarm clears	step 38

- 36** The LCME major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 38.
- 37** For additional help, contact the next level of support.
- 38** The procedure is complete.

PM LCME minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LCME	.	.	.		.

Indication

LCME (preceded by a number) appears under the PM header of the alarm banner. The LCME indicates minor alarm for a line concentrating module enhanced (LCME). The number that precedes the LCME indicates the number of LCMEs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with an LCME minor alarm.

Meaning

The LCME has in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in-service
- one unit is ISTb and one unit is manual busy
- one unit is in-service and one unit is manual busy
- both units are in-service with some C-side links out of service

Result

The alarm does not affect service.

Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*
- *Clearing ringing generator faults*

Do not go to the common procedures unless the step-action procedure directs you to go.

PM LCME

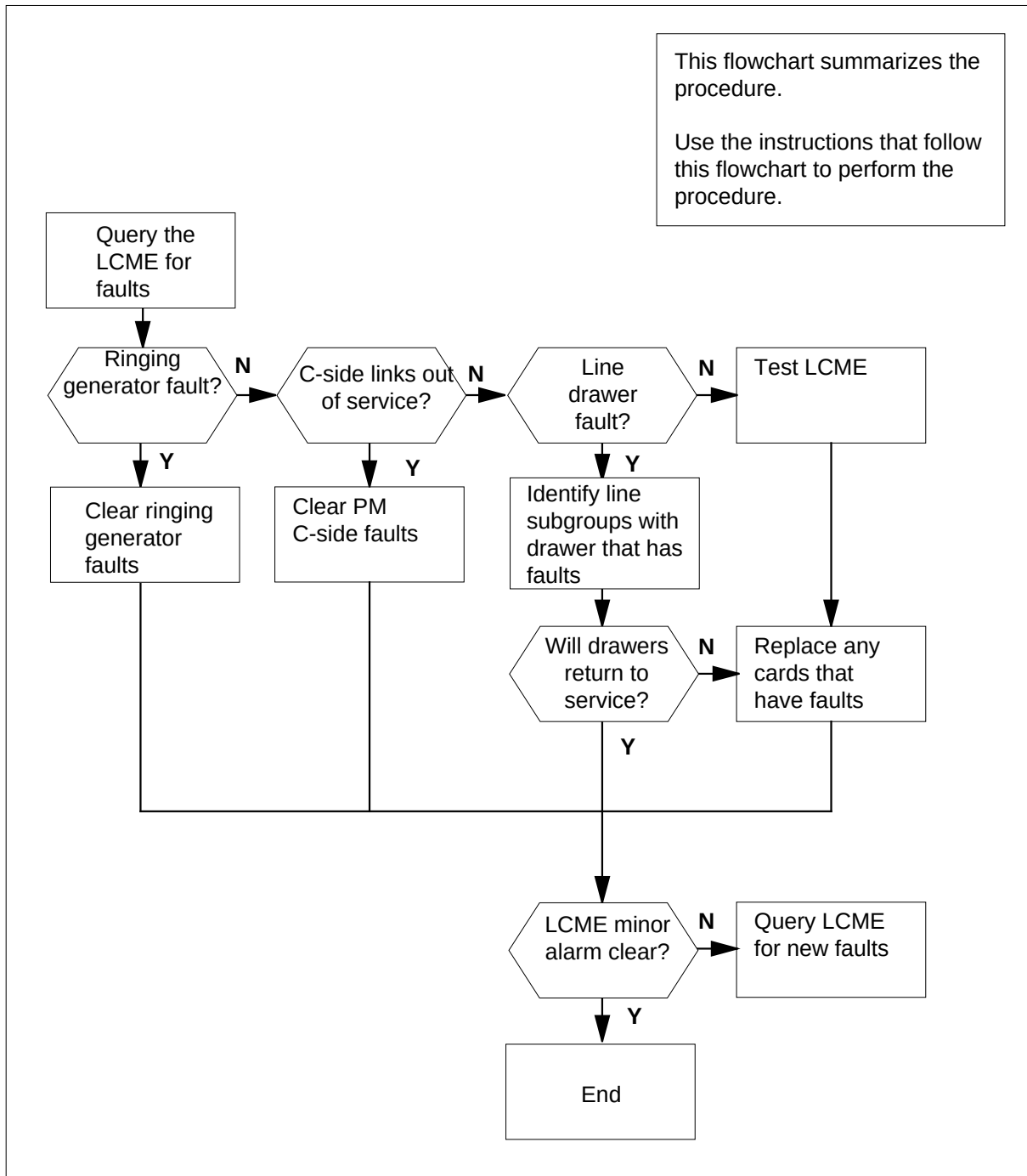
minor (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LCME minor (continued)

Summary of clearing a PM LCME minor alarm



PM LCME

minor (continued)

LCME frame

		NT6X30 Ringing Generator 0				NT6X30 Ringing Generator 1				
		Frame Supervisory Panel Shelf 72								
LCME 01	Unit 1	PLD 04 LSG 09 08	PLD 05 LSG 11 10	PLD 06 LSG 13 12	PLD 07 LSG 15 14	Fuse panel	BX35	BX35	BX34	6X53
	Unit 0	PLD 00 LSG 01 00	PLD 00 LSG 03 02	PLD 00 LSG 05 04	PLD 00 LSG 07 06	Fuse panel	BX35	BX35	BX34	6X53
LCME 00	Unit 1	PLD 04 LSG 09 08	PLD 05 LSG 11 10	PLD 06 LSG 13 12	PLD 07 LSG 15 14	Fuse panel	BX35	BX35	BX34	6X53
	Unit 0	PLD 00 LSG 01 00	PLD 00 LSG 03 02	PLD 00 LSG 05 04	PLD 00 LSG 07 06	Fuse panel	BX35	BX35	BX34	6X53

PM LCME minor (continued)

Clearing a PM LCME minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type

>MAPCI; MTC; PM

and press the Enter key.

Example of a MAP response:

LCME	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If an audible alarm

Do

rings

step 2

does not ring

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LCMEs, type

>DISP STATE ISTB LCME

and press the Enter key.

Example of a MAP response:

ISTb LCME: HOST 0 0

Note: If multiple LCMEs are ISTb, select an LCME to use. Repeat this procedure for each LCME that is ISTb.

Record the number of the LCMEs.

- 4 To post the LCME, type

>POST LCME lcme_no

and press the Enter key.

where

lcme_no

is the number (0 to 255) of the LCME identified in step 3

Example of a MAP response:

PM LCME minor (continued)

```
LCME  HOST 00 0  ISTb  Links_OOS:  CSide 17 PSide 0
Unit0:   Act  ISTb      /RG 0
Unit1:   Inact      InSv      /RG 0
              11  11  11  RG: Pref 0 InSv
Drwr:  01  23  45  67  89  01  23  45      Stby 1 InSv
      ..  --  --  --  --  ..  --  --
```

	If an MTCE flag	Do
	appears next to either unit	step 5
	does not appear	step 6
5	Go to the common procedure "Monitoring system maintenance" in this document. Complete this procedure and return to this step.	
	If the LCME minor alarm	Do
	remains	step 6
	changes	step 25
	clears	step 27
6	To determine the cause of the in-service trouble condition, type >QUERYPM FLT and press the Enter key. Note: There can be multiple causes for an in-service trouble condition for the LCME. The LCME and the LCME units remain ISTb until all the in-service trouble conditions clear.	
	If	Do
	the MAP response is any type of ringing generator fault	step 7
	the MAP response is REX Test Aborted	step 8
	the MAP response is C-side links out of service	step 9
	the MAP response is Drawer Fault	step 10
	the MAP response is Diagnostic Failed	step 18
	other than listed here	step 18

PM LCME minor (continued)

- 7 Go to the common procedure "Clearing ringing generator faults" in this document. Complete the procedure and return to this step.
- | If the LCME minor alarm | Do |
|-------------------------|---------|
| continues | step 23 |
| clears | step 27 |
- 8 The C-side PM of the LCME runs a routine exercise (REx) test. Wait until the REx test of the PM is complete. The REx test of the PM must finish before the REx test of the LCME can begin. If the REx test continues to abort, go to step 26.
- 9 Go to the common procedure "Clearing PM C-side faults" in this document. Complete this procedure and return to this step.
- | If the LCME minor alarm | Do |
|-------------------------|---------|
| continues | step 23 |
| clears | step 27 |
- 10 Check the MAP display for a line drawer that has faults. Letters that appear under the line subgroup numbers indicates a drawer has faults. The line subgroup numbers associate with a drawer.
- Example of a MAP response:*
- ```

LCME HOST 00 0 ISTb Links_00S: CSide 0 PSide 0
Unit0: Act InSv /RG 0
Unit1: Inact ISTb /RG 0
 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 Stby 1 InSv
 .. SS

```
- 11 To busy one line subgroup associated with the drawer that has faults, type  
**>BSY DRWR lsg\_no**  
and press the Enter key.  
*where*  
**lsg\_no**  
is the number of the line subgroup that you identified in step 10
- Example of a MAP response:*
- ```

LCME HOST 00 0 Drwr 2 will be taken out of service.
Please confirm ("YES" or "NO"):

```
- 12 To confirm the command, type
>YES
and press the Enter key.

**PM LCME
minor** (continued)

- 13** To test the line subgroup, type

>TST DRWR lsg_no

and press the Enter key.

where

lsg_no

is the number of the line subgroup

If the TST command	Do
passes	step 14
fails and the system generates a card list	step 15
fails and the system did not generate a card list	step 26

- 14** To return the line subgroup to service, type

>RTS DRWR lsg_no

and press the Enter key.

where

lsg_no

is the number of the line subgroup

If the RTS command	Do
passes and the LCME minor alarm clears	step 27
passes, the LCME minor alarm remains, and you did not work on the other line subgroup	Go to step 11 and work on the other line subgroup.
passes, the LCME minor alarm remains, and you worked on both line subgroups	step 24
fails and the system generates a card list	step 15
fails and the system did not generate a card list	step 26

- 15** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 16.

- 16** To return the line subgroup to service, type

>RTS DRWR lsg_no

and press the Enter key.

where

PM LCME minor (continued)

lsg_no
is the number of the line subgroup

If the RTS command	Do
passes and the LCME minor alarm clears	step 27
passes, the LCME minor alarm remains, and you did not work on the other line subgroup	Go to step 11 and work on the other line subgroup.
passes, the LCME minor alarm remains, and you have worked on both line subgroups	step 24
fails and you did not replace all the cards on the list	step 17
fails and you replaced all the cards on the list	step 26

17 Replace the next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 16.

18 To test the LCME unit, type

>TST UNIT unit_no

and press the Enter key.

where

unit_no
is the number (0 to 1) of the LCME unit

If the TST command	Do
passes and the alarm clears	step 27
fails and the system generates a card list	step 19
fails and the system did not generate a card list	step 26

19 To busy the LCME unit associated with the alarm, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no
is the number (0 to 1) of the LCME unit

PM LCME**minor** (continued)

20 Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 21.

21 To return the LCME unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the number (0 to 1) of the LCME unit

If the RTS command	Do

passes	step 27

fails and you did not replace all the cards on the list	step 22

fails and you replaced all the cards on the list	step 26

22 Replace the next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 21.

23 To post the LCME, type

>POST LCME lcme_no

and press the Enter key.

where

lcme_no

is the number (0 to 255) of the LCME

24 To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

Note: An LCME can have multiple causes for the in-service trouble condition. The LCME and the LCME units remain ISTb until all the in-service trouble conditions clear.

If the MAP response	Do

is C-side links out of service	step 9

is Drawer Fault	step 10

is Diagnostic Failed	step 18

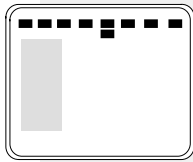
is other than listed here	step 26

**PM LCME
minor (end)**

- 25** The LCME minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Complete the procedure and go to step 27.
- 26** You will require additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps you performed to clear this alarm.
- 27** This procedure is complete. If the system displays additional alarms, proceed to the correct procedure to clear the alarm.

PM LGC critical

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LGC	.	.	.		.
				C					

Indication

At the MTC level of the MAP display, LGC appears under the PM header of the alarm banner. A *C* follows the LGC. An LGC indicates a critical alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC critical alarm.

Meaning

The LGC is system busy (SysB) or C-side busy (CBsy). An LGC is C-side busy if both units are C-side busy. An LGC is system busy if

- both LGC units are system busy or
- one LGC unit is system busy and the other LGC unit is manually busy (ManB)

Result

Service stops when an LGC is system busy or C-side busy. Each subtending peripheral module (PM) is also without service unless the PM has emergency stand-alone (ESA). An example of a subtending PM is the line concentrating module (LCM).

Common procedures

This procedure refers to the following common procedures:

- "Clearing PM C-side faults"
- "Monitoring system maintenance"

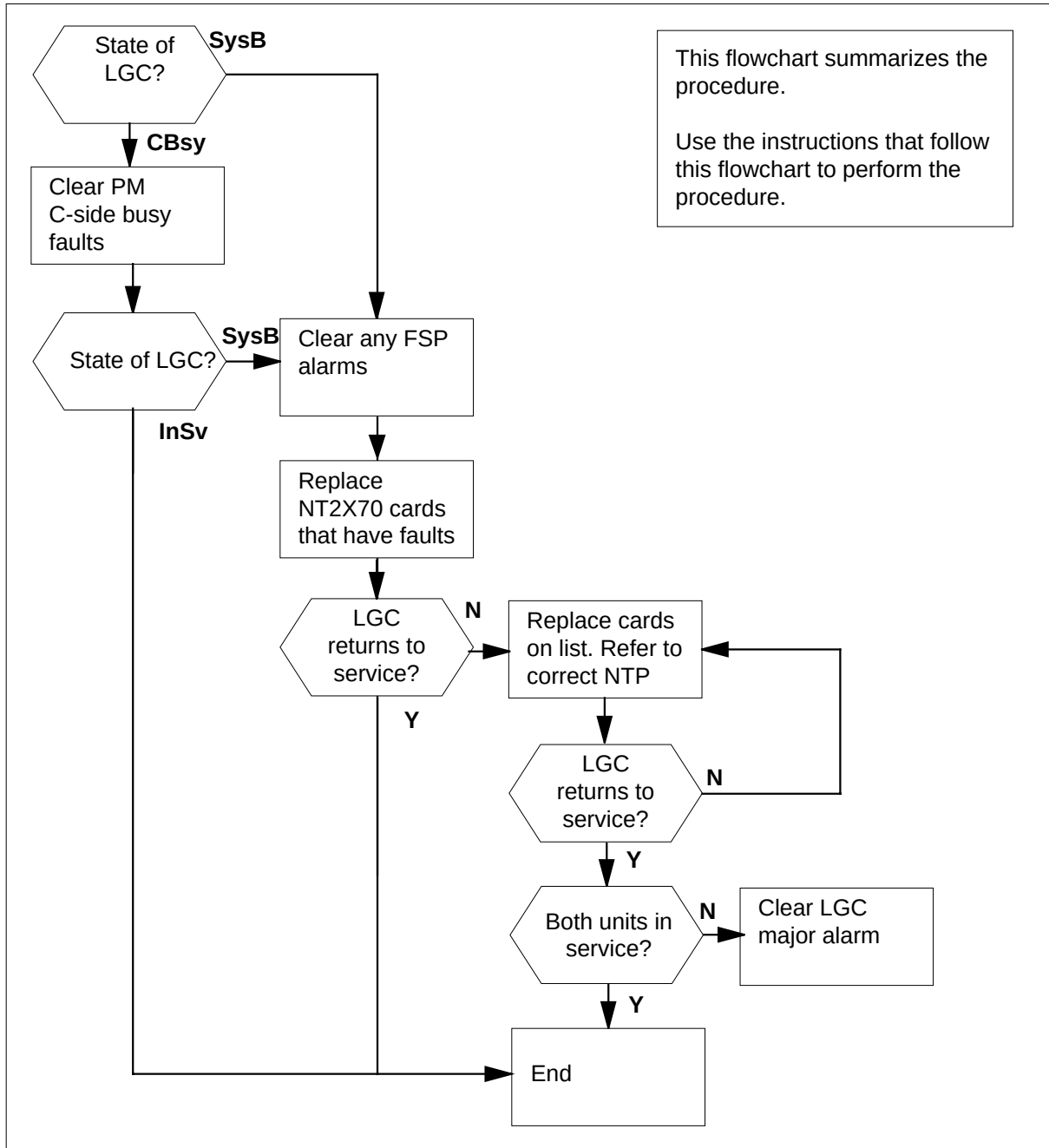
Do not go to the common procedure unless the step-action procedure directs you to go.

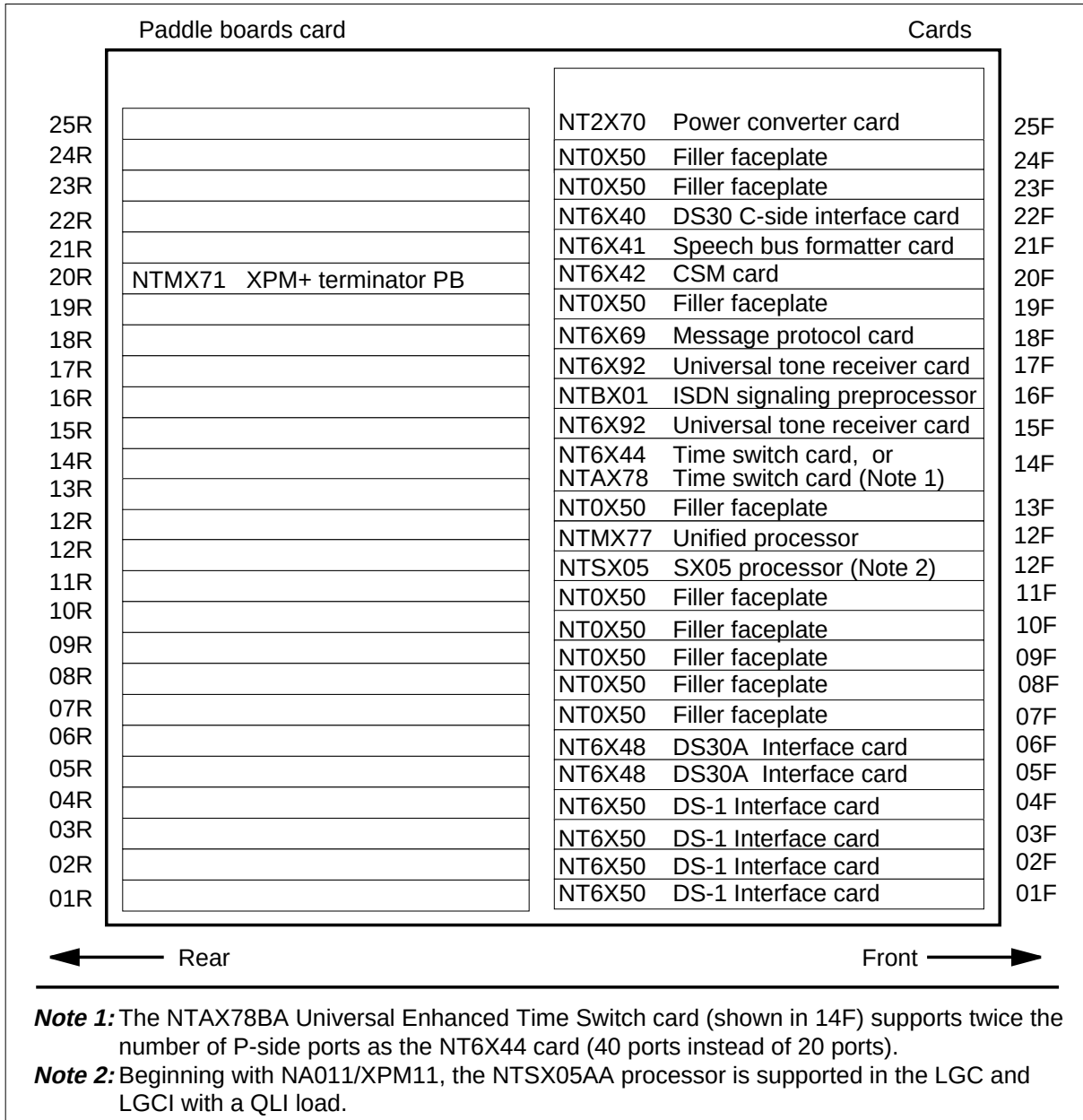
Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action follows the flowchart.

PM LGC critical (continued)

Summary of clearing a PM LGC critical alarm



PM LGC**critical** (continued)**LGC shelf layout**

PM LGC critical (continued)

Clearing a PM LGC critical alarm

At the MAP display

- 1** To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If	Do
an audible alarm rings	step 2
no audible alarm rings	step 3

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To determine if system busy or C-side busy LGCs cause the critical alarm, type

>STATUS

and press the Enter key.

Example of a MAP response:

	SysB 1	ManB 0	OffL 0	CBsy 2	ISTb 0	InSv 25
PM						
TM8	0	0	0	0	0	2
MTC	0	0	0	0	0	3
LGC	1	0	0	0	0	3
LCM	0	0	0	2	0	0
DTC	0	0	0	0	0	1
LIM	0	0	0	0	0	1
LIU7	0	0	0	0	0	1
FRIU	0	0	0	0	0	1
DTCI	0	0	0	0	0	1
LCME	0	0	0	0	0	1
MORE . . .						

Note 1: An LGC critical alarm can cause LCM alarms. If an LGC is SysB, the associated LCMs of the LGC are CBsy.

PM LGC

critical (continued)

Note 2: If LGCs are both SysB and CBsy, work on the SysB LGCs first.

- 4 To display all CBsy or SysB LGCs, type

>DISP STATE state LGC

and press the Enter key.

where

state

is CBsy or SysB, as you determined in step 3

Example of a MAP response:

SysB LGC : 0

Note: If multiple LGCs are CBsy or SysB, select an LGC to work on.
Record the number of the LGC.

If you	Do
recover a CBsy LGC	step 5
recover a SysB LGC	step 6

- 5 Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and return to this step.

If	Do
the LGC remains CBsy	Treat the CBsy LGC as a SysB LGC and go to step 25
the LGC changes to SysB	step 6
one LGC unit returns to service	step 46
both LGC units return to service	step 48

- 6 Check the EXT header of the alarm banner for a frame supervisory panel (FSP) alarm.

If an FSP alarm	Do
is present	step 7
is not present	step 25

- 7 To locate the FSP alarm, type

>EXT; LIST FSP

and press the Enter key.

Example of a MAP response:

FSPAISD

In this example, the alarm is an FSP alarm on Aisle D.

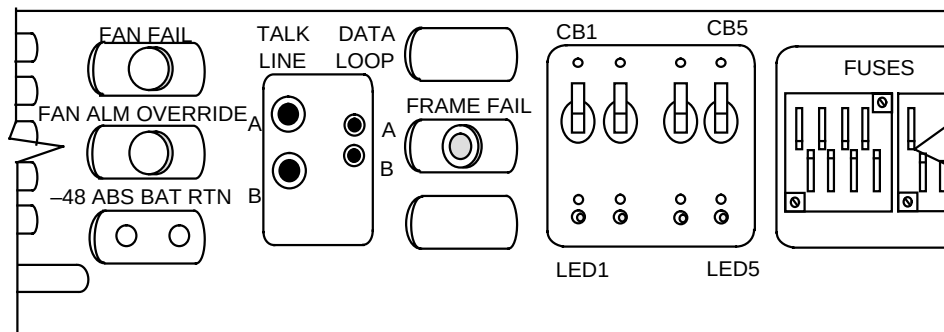
PM LGC critical (continued)

At the equipment aisle

- 8 Go to the aisle that you identified in step 7. The end aisle alarm is lit.

At the equipment frame

- 9 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.

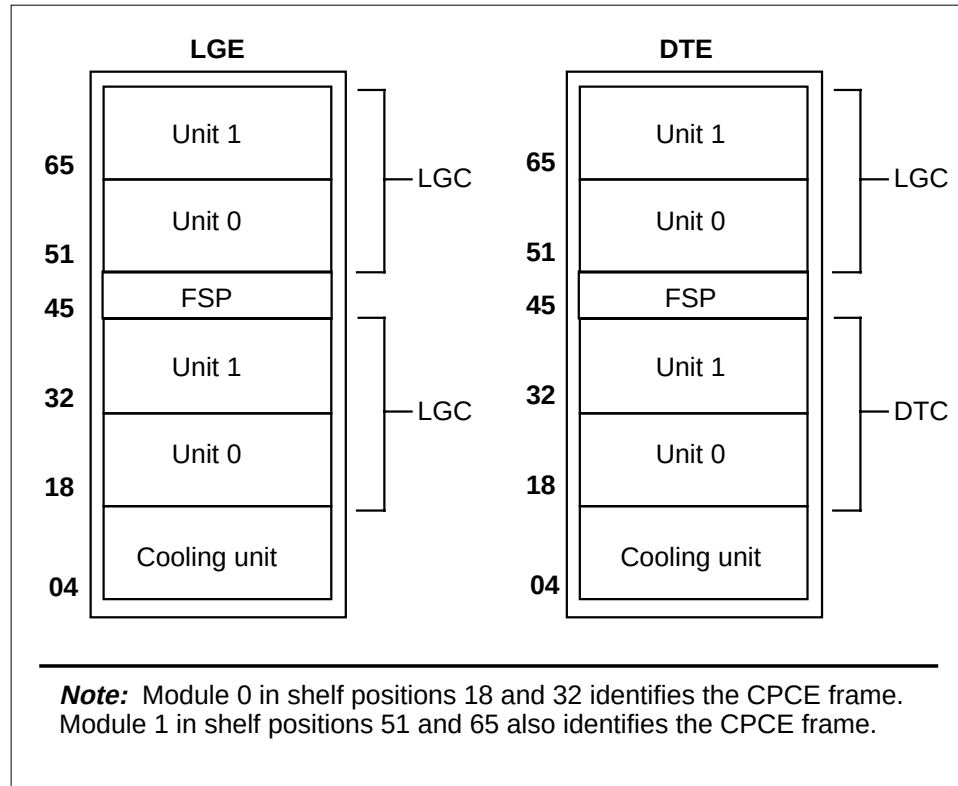


Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

- 10 The following figure illustrates an LGC critical alarm. The frame that contains the LGC is a CPCE type. This frame can be a line group equipment (LGE) frame, line trunk equipment (LTE) frame, or digital trunk equipment (DTE) frame. Identify the PMs that are in the frame. Refer to the following figure for help.

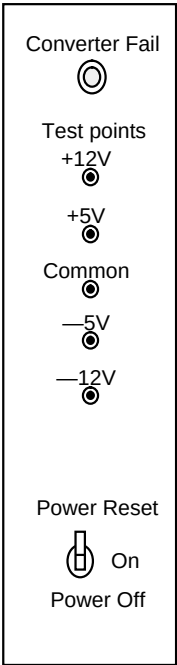
PM LGC

critical (continued)



- 11 Check the Converter Fail LED on each 2X70 power converter card in the frame. Refer to the figure "LGC shelf layout" for help to locate this card. Refer to the following figure of a 2X70AE card for help to check the Converter Fail LED.

PM LGC
critical (continued)



If any LEDs	Do
are lit	step 12
are not lit	step 16

12 Note the LGC with the LED light on.

At the MAP display

13

ATTENTION

Record the active unit (0 or 1) to use later in this procedure. When you manual busy the LGC, unit activity will not display.

To post the system busy LGC, type

>PM; POST LGC lgc_no

and press the Enter key.

where

lgc_no

is the number (0 to 255) of the LGC that you recorded in step 4

Example of a MAP response:

PM LGC
critical (continued)

PM Type: LGC PM No.: 0 PM Int. No: 0 Node_No.: 21
PMs Equipped: 38 Loadname: ECL07BI
Unit 0 is patched
Unit 1 is patched

	If a Mtce indicator	Do
	appears next to either unit	step 14
	does not appear	step 15
- 14** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.
- | | If the critical alarm | Do |
|--|------------------------------|-----------|
| | remains | step 15 |
| | changes | step 46 |
| | clears | step 48 |
- 15** Determine if the LGC is the same as the LGC that you identified in step 12.
- | | If the LGC | Do |
|--|-------------------|-----------|
| | is different | step 16 |
| | is the same | step 17 |
- 16** Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to step 6.
- 17** To busy the LGC, type
>BSY PM
and press the Enter key.
Note: When you busy the whole LGC, the system generates a critical LCM alarm.
- 18** Choose the active unit to work on, that you recorded in step 13.
- At the equipment frame**
- 19** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- At the MAP display**
- 20** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

PM LGC critical (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 0:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

21	If the PRL card or packlet	Do
	is present	step 21
	is not present	step 24
	Determine if the LGC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card.	
	If the LGC is equipped with an	Do
	NT7X05 PRL card	step 22
	NTSX06 PRL packlet	step 23

PM LGC
critical (continued)

- 22** To load the LGC from the local image, type
>LOADPM PM LOCAL IMAGE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 23

23

**DANGER****Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LGC from the local loadfile, type
>LOADPM PM LOCAL LOADFILE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 24

- 24** To load the LGC that you worked on in step 19, type
>LOADPM PM
and press the Enter key.

If the load	Do
failed, and the system generated a card list	step 38
failed, and the system did not generate a card list	step 47
passed	step 37

PM LGC critical (continued)

- 25** To post the LGC, type
>POST LGC lgc_no
 and press the Enter key.
where
lgc_no
 is the number (0 to 255) of the LGC that you recorded in step 4

Example of a MAP display response:

```
LGC      0          SysB Links_00S: CSide 20, PSide 0
Unit0:    Act  SysB
Unit1:    Inact   SysB
```

If a Mtce indicator	Do
appears next to either unit	step 26
does not appear	step 27

- 26** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.

If the critical alarm	Do
remains	step 27
changes	step 46
clears	step 48

- 27** To query the LGC for fault indications, type
>QUERYPM FLT
 and press the Enter key.

Example of a MAP display response:
 Activity dropped

- 28** Record the MAP response.

If the MAP response	Do
is SWACT In Progress	step 29
is Load Corruption	step 30
is Load Failed	step 30
is Distributed Data Loading Failed	step 30

PM LGC critical (continued)

	If the MAP response	Do
	is Activity dropped	step 30
	is Not loaded since power up	step 30
	is other than listed here	step 36
29	In an attempt to recover the LGC, the system switches the activity between the two LGC units. Wait until system maintenance is complete.	
	If	Do
	the LGC units do not return to service	step 36
	one LGC unit returns to service	step 46
	both LGC units return to service	step 48
30	To busy the LGC, type >BSY PM and press the Enter key. Note: When you busy a the whole LGC, the system generates a critical LCM alarm for each associated LCM.	
31	The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type >QUERYPM FILES and press the Enter key. Note: If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid <i>Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:</i> Unit 0: Flash load File: [ECL07BI] ← (Processor load file name) Flash Image File:ECL07BI Flash Image Timestamp: 1996/01/17 16:01:52.944 WED. Unit 1: Flash load File: ECL07BI Flash Image File:ECL07BI Flash Image Timestamp: 1996/01/17 16:04:52.944 WED. <i>Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:</i>	

PM LGC critical (continued)

```

Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A

```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packlet	Do
is present	step 32
is not present	step 35

- 32** Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```

QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor

```

Example of a MAP response if an SX05 processor is present

```

QueryPM config
UNIT 0   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
UNIT 1   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet

```

If the LGC is equipped with an	Do
NT7X05 PRL card	step 33
NTSX06 PRL packlet	step 34

PM LGC critical (continued)

- 33** To load the LGC from the local image, type
>LOADPM PM LOCAL IMAGE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 34

34



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LGC from the local loadfile, type
>LOADPM PM LOCAL LOADFILE
and press the Enter key.

If the load	Do
passed	step 37
failed	step 35

- 35** To load the LGC from the computing module (CM) at the front end, type
>LOADPM PM
and press the Enter key.

If the load	Do
failed, and the system generated a card list	step 38
failed, and the system did not generate a card list	step 47
passed	step 37

PM LGC critical (continued)

- 36** To busy the LGC, type
>BSY PM
 and press the Enter key.
Note: When you busy the whole LGC, the system generates a critical LCM alarm for each associated LCM.
- 37** To return the LGC to service, type
>RTS PM
 and press the Enter key.

If	Do
the LGC failed to return to service, and the system generated a card list	step 38
one LGC unit returns to service	step 46
both LGC units return to service	step 48

At the equipment frame

- 38** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" for help to locate this card.
- The MAP response in step 13 (if you completed this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

(Sheet 1 of 2)

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTSX05
Activity Dropped	NTMX77, NTSX05
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
Load Corruption	NT6X42, NTMX77, NTSX05

PM LGC
critical (continued)

(Sheet 2 of 2)

MAP response	Suspect cards
Load Failed	NTMX77, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTSX05

If you replace	Do
an NT6X42 or NTMX77 card	step 39
an NTSX05 card	step 40
other than listed here	step 44

At the MAP display

- 39** Use the information that you recorded in step 13 to load the active LGC unit. To load the active LGC unit from the local image on the NT7X05 card, type

>LOADPM ACTIVE LOCAL IMAGE

and press the Enter key.

If the load	Do
passed	step 42
failed	step 40

40**DANGER****Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the active LGC unit from the local loadfile on the PRL card, type

>LOADPM ACTIVE LOCAL LOADFILE

PM LGC
critical (continued)

and press the Enter key.

If the load	Do
passed	step 42
failed	step 41

- 41** To load the active LGC unit from the CM, type
>LOADPM ACTIVE
and press the Enter key.

If the load	Do
passes	step 42
fails	step 47

- 42** To query the LGC counters for the firmware load on the NTMX77 or NTSX05 type

```
>QUERYPM CNTRS
```

and press the Enter key.

Example of a MAP display for an LGC equipped with an NTMX77:

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EPRom Version: AB02

EEProm Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

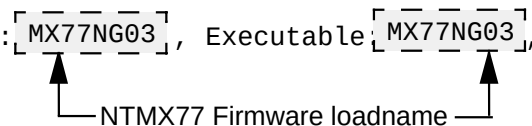
Unit 1:

Ram Load: ECL07BI

EPRom Version: AB02

```
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03,
```

UP:MX77AA



Example of a MAP display for an LGC equipped with an NTSX05:

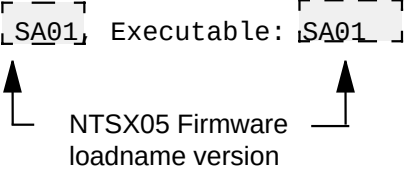
PM LGC

critical (continued)

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: [SA01] Executable: [SA01]
UP: SX05AA
IP: BX01

```



NTSX05 Firmware
loadname version

	If firmware	Do
	is valid	step 44
	is invalid	step 43
43	To load the NTMX77 or NTSX05 firmware, type >LOADFW ACTIVE and press the Enter key.	
	If load	Do
	passed	step 44
	failed	step 47
44	To return the LGC unit to service, type >RTS ACTIVE and press the Enter key.	
	If the unit	Do
	does not return to service, and you did not replace all cards on the list of cards that have faults	step 45
	does not return to service, and you replaced all cards on the list of cards that have faults	step 47
	fails, and the system did not generate a card list	step 47

**PM LGC
critical (end)**

If the unit	Do
returns to service	step 46

At the equipment frame

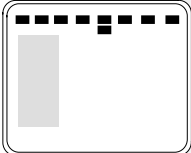
- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help in how to locate this card.

If you replace	Do
an NTMX77 or NT6X42 card	step 39
an NTSX05 card	step 40
other cards	step 44

- 46** The LGC critical alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 48.
- 47** You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to clear this alarm.
- 48** The procedure is complete.

PM LGC major

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LGC	.	.	.		.
					M					

Indication

At the MTC level of the MAP display, LGC (preceded by a number and followed by an M) appears under the PM header of the alarm banner. The LGC indicates a major alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC major alarm.

Meaning

The LGC is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in service

Result

The alarm does not affect service. A backup unit is not available in the LGC.

Common procedures

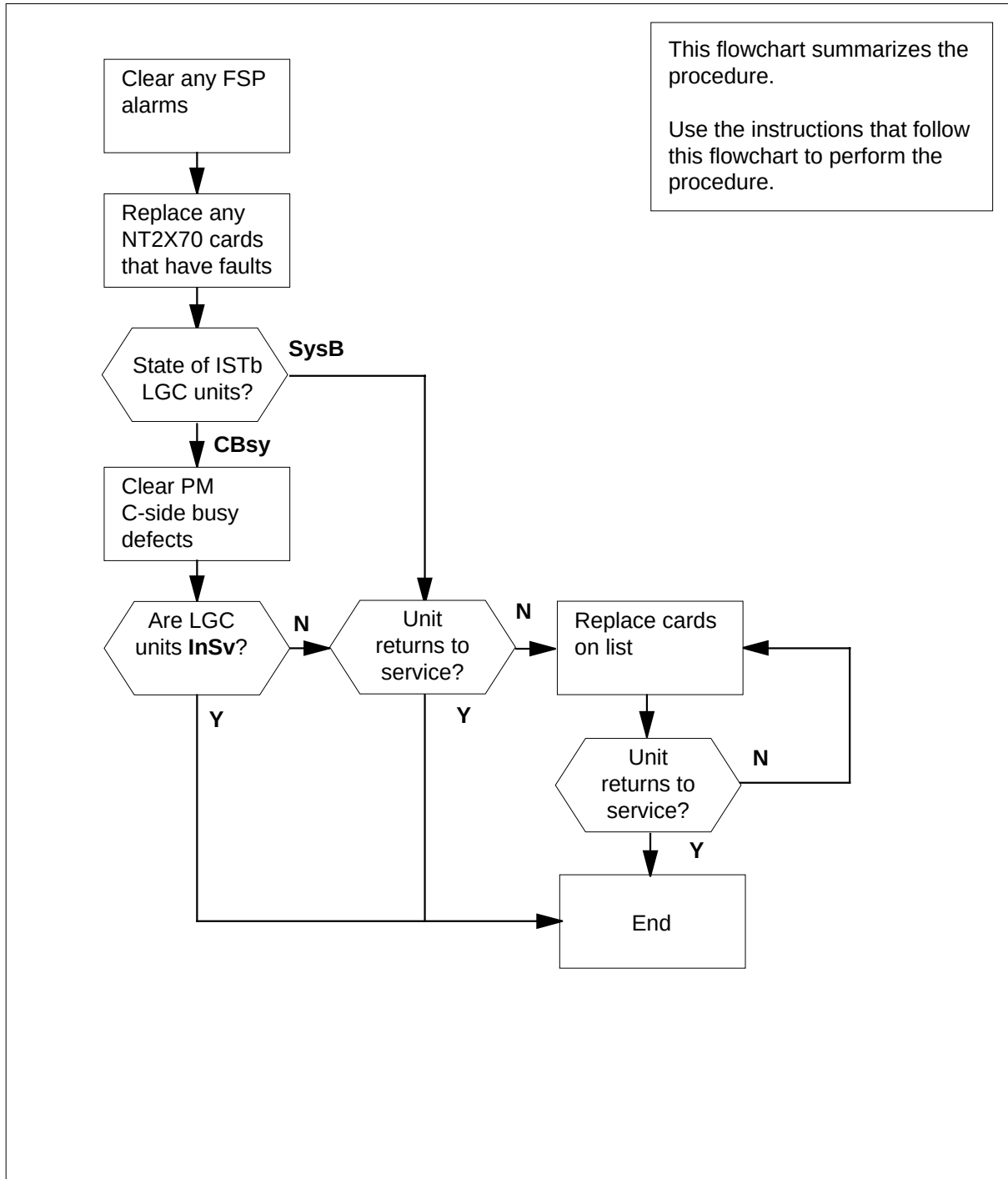
This procedure refers to the following common procedures:

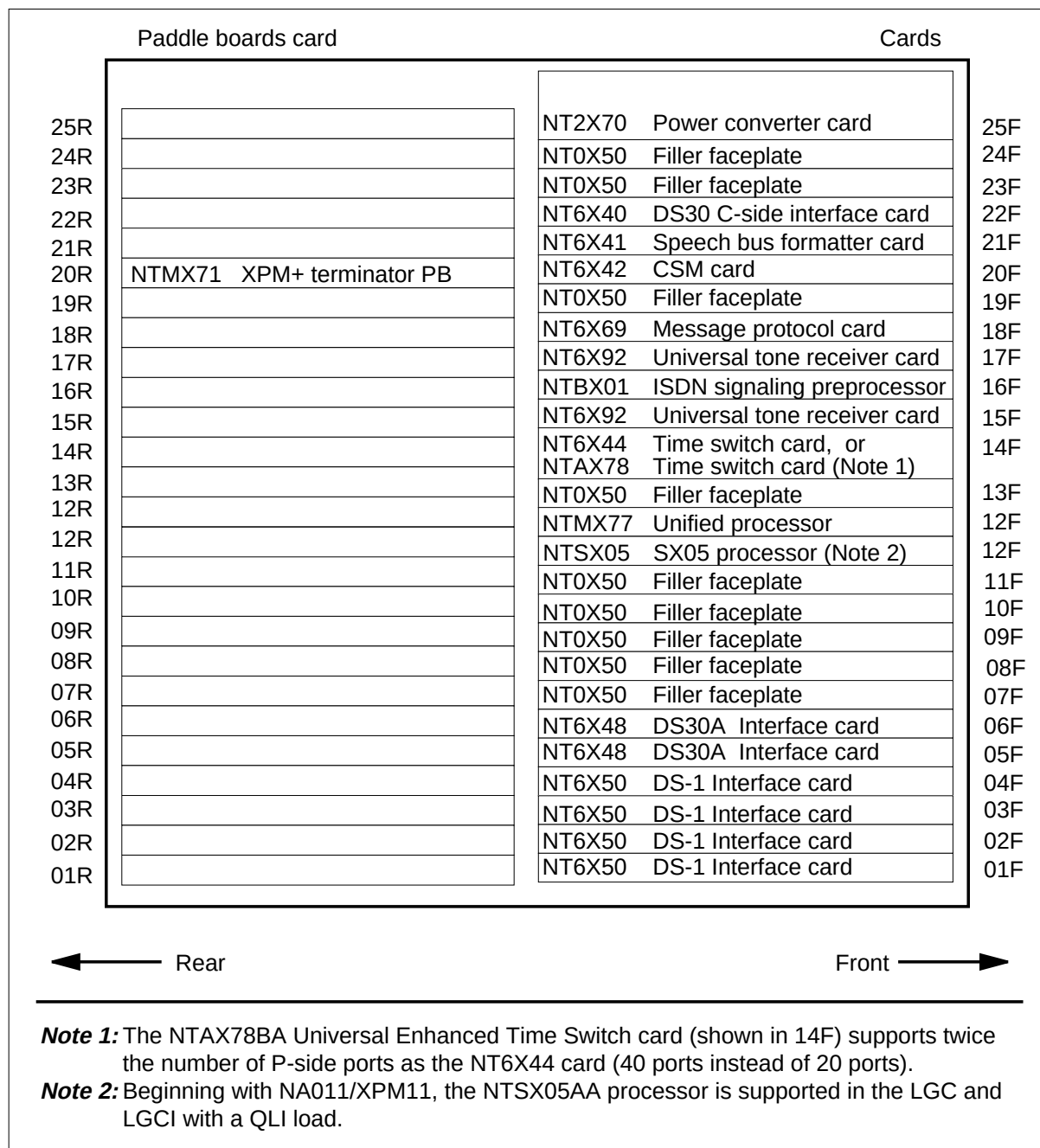
- "Clearing PM C-side faults"
- "Monitoring system maintenance"

Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LGC
major** (continued)**Summary of clearing a PM LGC major alarm**



PM LGC major (continued)

Clearing a PM LGC major alarm

At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If			Do			
an audible alarm rings			step 2			
no audible alarm rings			step 3			

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LGCs, type

>DISP STATE ISTB LGC

and press the Enter key.

Example of a MAP response:

ISTB LGC : 0

Note: If multiple LGCs are ISTb, select an LGC to work on. Record the number of the LGC.

- 4 Check the EXT header of the alarm banner for a frame supervisory panel (FSP) alarm.

If an FSP alarm		Do
is present		step 5
is not present		step 22

- 5 To locate the FSP alarm, type

>EXT; LIST FSP

and press the Enter key.

Example of a MAP response:

PM LGC major (continued)

FSPAID

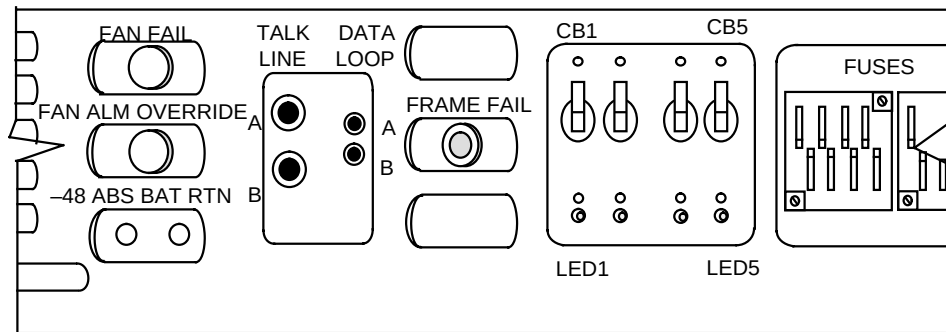
In this example, the alarm is an FSP alarm on Aisle D.

At the equipment aisle

- 6 Go to the aisle that you identified in step 5. The end aisle alarm is lit.

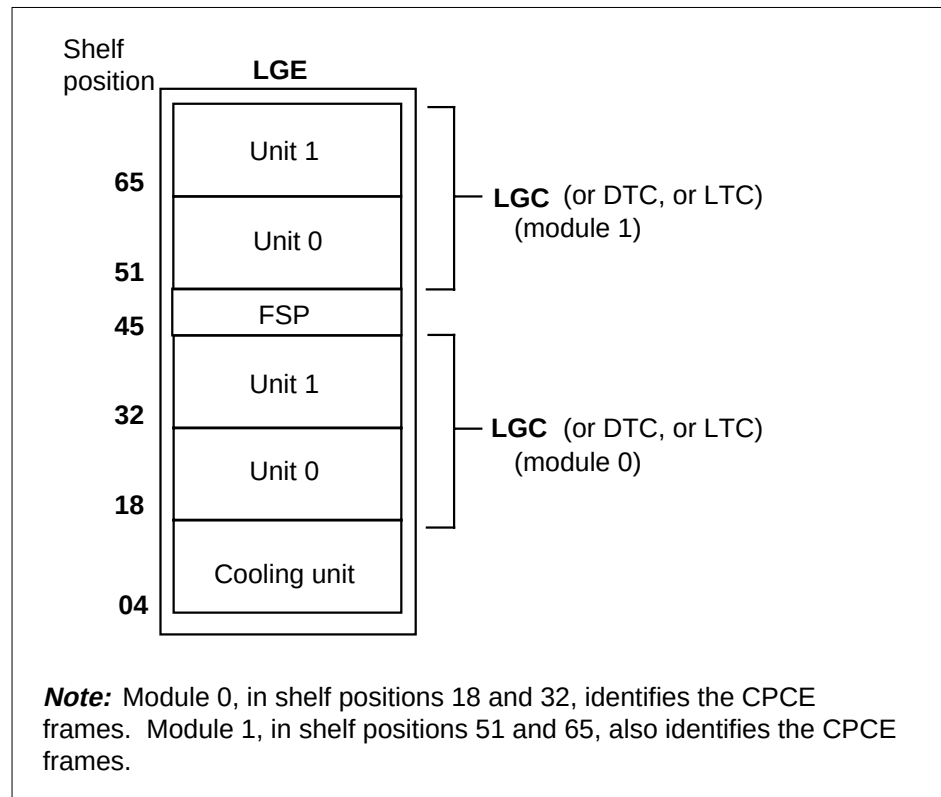
At the equipment frame

- 7 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.



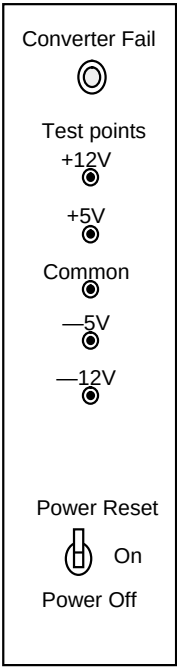
Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

- 8 The following diagram shows a line group equipment (LGE) frame. Because this is an EXT FSP alarm, the frame that contains LGC can be a line group equipment (LGE) frame. The FSP alarm can appear in line trunk equipment (LTE) frames or digital trunk equipment (DTE) frames. Identify the PMs in the frame. Refer to the following diagram for help.

PM LGC
major (continued)

- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

PM LGC
major (continued)



If any LEDs	Do
are lit	step 10
are not lit	step 14

10 Note the LGC with the LED lamp on.

At the MAP display

11 To post the LGC, type
>PM; POST LGC lgc_no
and press the Enter key.
where
lgc_no
is the number (0 to 255) of the LGC that you recorded in step 3
Example of a MAP response:

PM LGC major (continued)

LGC 0 ISTb Links_00S: CSide 17, PSide 0
Unit0: Act InSv
Unit1: Inact CBSy

	If a Mtce indicator	Do
	appears next to either unit	step 12
	does not appear	step 13
12	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the major alarm	Do
	remains	step 13
	changes	step 47
	clears	step 49
13	Determine if the LGC is the same as the LGC that you identified in step 10.	
	If the LGC	Do
	is different	step 14
	is the same	step 15
14	Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to step 4.	
15	To busy the SysB LGC unit, type >BSY UNIT unit_no and press the Enter key. where unit_no is the number (0 to 1) of the LGC unit	

At the equipment frame

- 16** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this step.

At the MAP display

- 17** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

PM LGC

major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 1:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

	If the PRL card or packlet	Do
	is present	step 18
	is not present	step 21
18	Determine if the LGC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card.	
	If the LGC is equipped with an	Do
	NT7X05 PRL card	step 19
	NTSX06 PRL packlet	step 20

PM LGC major (continued)

- 19** To load the LGC unit from the local image, type
>LOADPM UNIT unit_no LOCAL IMAGE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LGC unit

If the load	Do
passed	step 36
failed	step 20

20



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want to use the NOPATCH option of the loadfile.

- To load the LGC unit from the local loadfile, type
>LOADPM UNIT unit_no LOCAL LOADFILE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LGC unit

If the load	Do
passed	step 36
failed	step 21

- 21** To load the LGC unit, type
>LOADPM UNIT unit_no
 and press the Enter key.

where

PM LGC major (continued)

unit_no is the number (0 to 1) of the LGC unit	
If the load	Do
failed, and the system generated a card list	step 37
failed, and the system did not generate the card list	step 48
passed	step 36
22	To post the LGC, type >POST LGC lgc_no and press the Enter key. <i>where</i> lgc_no is the number (0 to 255) of the LGC that you recorded in step 3 <i>Example of a MAP response:</i> <pre>LGC 0 InSv Links_00S: CSide 20, PSide 0 Unit0: Act InSv Unit1: Inact SysB</pre>
If a Mtce indicator	Do
appears next to either unit	step 23
does not appear	step 24
23	Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.
If the alarm	Do
remains	step 24
changes	step 47
clears	step 49
24	Determine the maintenance state of each LGC unit.
If	Do
one unit is CBSy and the other unit is InSv or ISTb	step 25

PM LGC major (continued)

	If	Do
	one unit is SysB and the other unit is InSv or ISTb	Work on the SysB unit. Go to step 26.
25	Go to the common procedure "Clear PM C-side faults" in this document. Complete the procedure and return to this point.	
	If	Do
	the LGC remains ISTb because one unit is SysB and the other is InSv or ISTb	Work on the SysB unit. Go to step 26.
	the LGC returns to service	step 49
26	To query the LGC for fault indications, type >QUERYPM FLT and press the Enter key. <i>Example of a MAP response:</i> Activity dropped	
27	Record the MAP response.	
	If the MAP response is	Do
	SWACT In Progress	step 28
	Load Corruption	step 29
	Load Failed	step 29
	Distributed Data Loading Failed	step 29
	Activity dropped	step 29
	other than listed here	step 35
28	In an attempt to recover the LGC, the system switches the activity between the two LGC units. Wait until system maintenance is complete.	
	If the LGC	Do
	does not return to service	step 35
	returns to service	step 49

PM LGC

major (continued)

- 29 To busy the LGC unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the inactive LGC unit

- 30 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packet	Do
is present	step 31
is not present	step 34

PM LGC major (continued)

- 31** Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packet
UNIT 1   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packet
```

If the LGC is equipped with an	Do
NT7X05 PRL card	step 32
NTSX06 PRL packet	step 33

- 32** To load the LGC unit from the local image, type

>LOADPM UNIT unit_no LOCAL IMAGE

and press the Enter key.

where

unit_no

is the number (0 to 1) of the LGC unit

If the load	Do
passed	step 36
failed	step 33

PM LGC
major (continued)

33



DANGER
Possible service interruption
The LOCAL LOADFILE option of the LOADPDM command has a parameter of [<file> string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want the NOPATCH option of the loadfile.

To load the LGC unit from the local loadfile, type
>LOADPDM UNIT unit_no LOCAL LOADFILE
and press the Enter key.

where

unit_no
is the number (0 to 1) of the LGC unit

If the load	Do
passed	step 36
failed	step 34

34 To load the LGC unit, type
>LOADPDM UNIT unit_no
and press the Enter key.

where

unit_no
is the number of the inactive LGC unit

If the load	Do
failed, and the system generated a card list	step 37
failed, and the system did not generate the card list	step 48
passed	step 36

35 To busy the LGC unit that has faults, type
>BSY UNIT unit_no
and press the Enter key.

where

PM LGC major (continued)

- unit_no**
is the number (0 to 1) of the LGC unit
- 36** To return the LGC unit to service, type
>RTS UNIT unit_no
and press the Enter key.
where

unit_no
is the number (0 to 1) of the LGC unit

If the LGC unit	Do
failed, and the system generated a card list	step 37
failed, and the system did not generate the card list	step 48
passed	step 49

At the equipment frame

- 37** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card.
- The MAP response in step 11 (if you completed this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

(Sheet 1 of 2)

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTSX05
Activity Dropped	NTMX77, NTSX05
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
Load Corruption	NTMX77, NTSX05

PM LGC
major (continued)

(Sheet 2 of 2)

MAP response	Suspect cards
Load Failed	NTMX77, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTSX05

If you replace	Do
an NT6X42, NTMX77, or NTSX05 card	step 38
other than listed here	step 45

At the MAP display

- 38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File:ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File:ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:

PM LGC major (continued)

```
Unit 0:
Slotlet 0:
Flash Load File: QLI10BI ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 1:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If the PRL card or packlet	Do
is present	step 39
is not present	step 42

- 39** Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0   Slot 12: SX05AA
PCMCIA Slotlet 0: SX06CA
PCMCIA Slotlet 1: No packet
UNIT 1   Slot 12: SX05AA
PCMCIA Slotlet 0: SX06CA
PCMCIA Slotlet 1: No packet
```

If the LGC is equipped with an	Do
NT7X05 PRL card	step 40
NTSX06 PRL packet	step 41

PM LGC major (continued)

- 40** To load the inactive LGC unit from the local image on the NT7X05 card, type
>LOADPM UNIT unit_no LOCAL IMAGE
and press the Enter key.

where

unit_no
is the number of the inactive LGC unit

If the load	Do
passed	step 43
failed	step 41

41



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want the NOPATCH option of the loadfile.

- To load the inactive LGC unit from the local loadfile on the NT7X05 card, type
>LOADPM UNIT unit_no LOCAL LOADFILE
and press the Enter key.

where

unit_no
is the number of the inactive LGC unit

If the load	Do
passed	step 43
failed	step 42

- 42** To load the inactive LGC unit from the CM, type
>LOADPM UNIT unit_no
and press the Enter key.

where

PM LGC major (continued)

unit_no
is the number of the inactive LGC unit

If the load	Do
passed	step 43
failed	step 48

- 43** To query the LGC counters for the firmware load on the NTMX77 or NTSX05 type

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP display for an LGC equipped with an NTMX77:

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

Unit 1:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03,

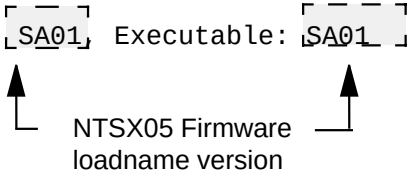
UP:MX77AA

↑
NTMX77 Firmware loadname ↑

Example of a MAP display for an LGC equipped with an NTSX05:

PM LGC major (continued)

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: [SA01], Executable: [SA01]
UP: SX05AA
IP: BX01



NTSX05 Firmware
loadname version

If firmware	Do
is valid	step 45
is invalid	step 44

- 44** To load the NTMX77 or NTSX05 firmware in the inactive unit, type
>LOADFW UNIT unit_no
and press the Enter key.
where
unit_no
is the number of the inactive LGC unit

If load	Do
passed	step 45
failed	step 48

- 45** To return the LGC unit to service, type
>RTS UNIT unit_no
and press the Enter key.
where

**PM LGC
major (end)**

unit_no
is the number of the inactive LGC unit

If the LGC unit	Do
does not return to service, and you did not replace all cards on the list of cards that have faults	step 46
does not return to service, and you replaced all cards on the list of cards that have faults	step 48
fails and the system does not generate a card list	step 48
returns to service	step 49

At the equipment frame

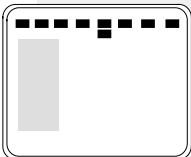
- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card.

If you replace	Do
an NTMX77, NTSX05, or NT6X42 card	step 38
replace any other cards	step 45

- 47** The LGC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

PM LGC minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
	.	.	.	.	1LGC	.	.	.	.

Indication

At the MTC level of the display, LGC (preceded by a number) appears under the PM header of the alarm banner. The LGC indicates a minor alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC minor alarm.

Meaning

The LGC is in service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in service
- one unit is ISTb and one unit is manually busy
- one unit is in service and one unit is manually busy
- both units are in service with some P-side links or C-side links out of service

Result

The alarm does not affect service.

Common procedures

This procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

Do not go to the common procedure unless the step-action procedure directs you to go.

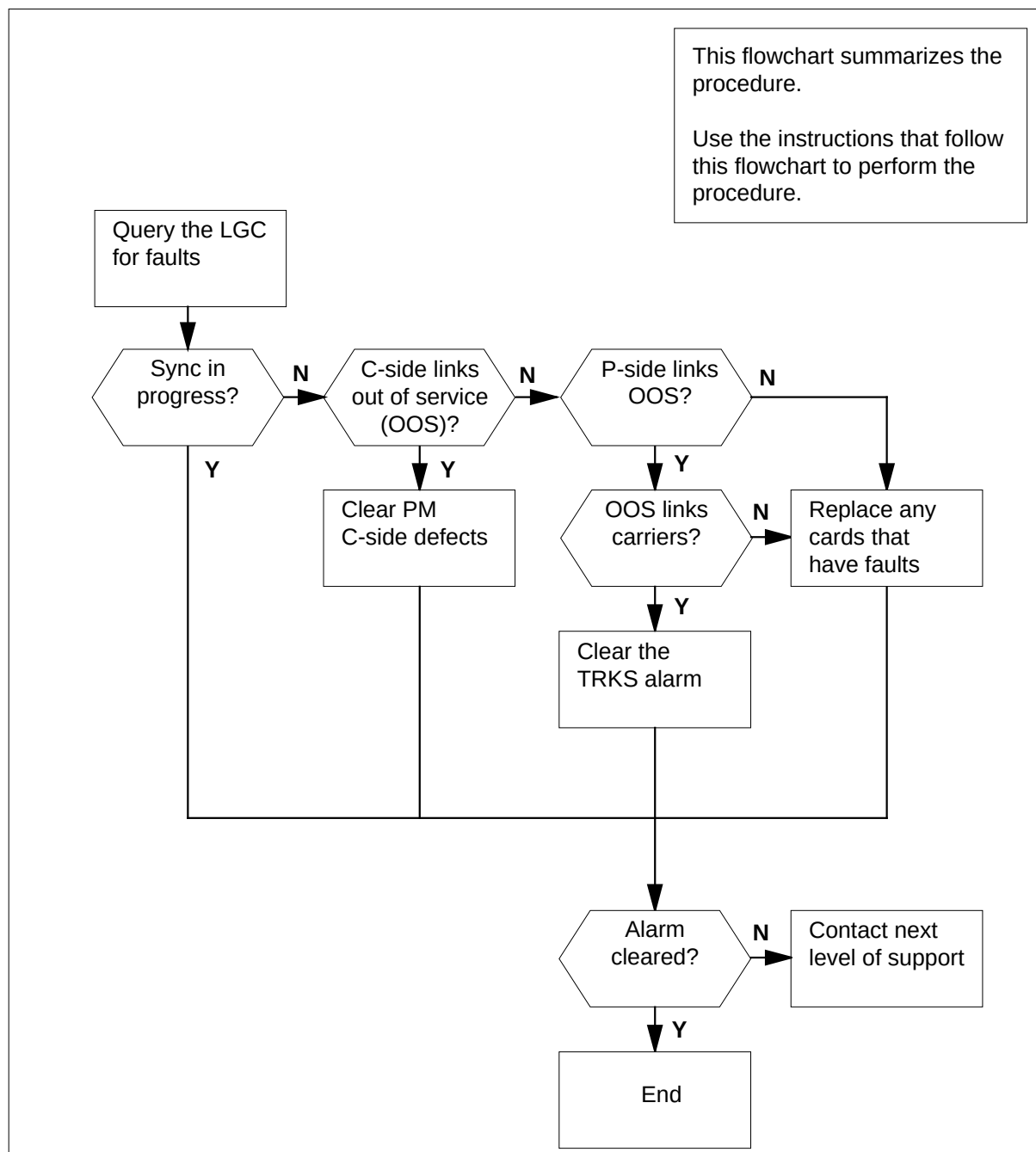
PM LGC
minor (continued)

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review procedure. Follow the steps to perform the procedure.

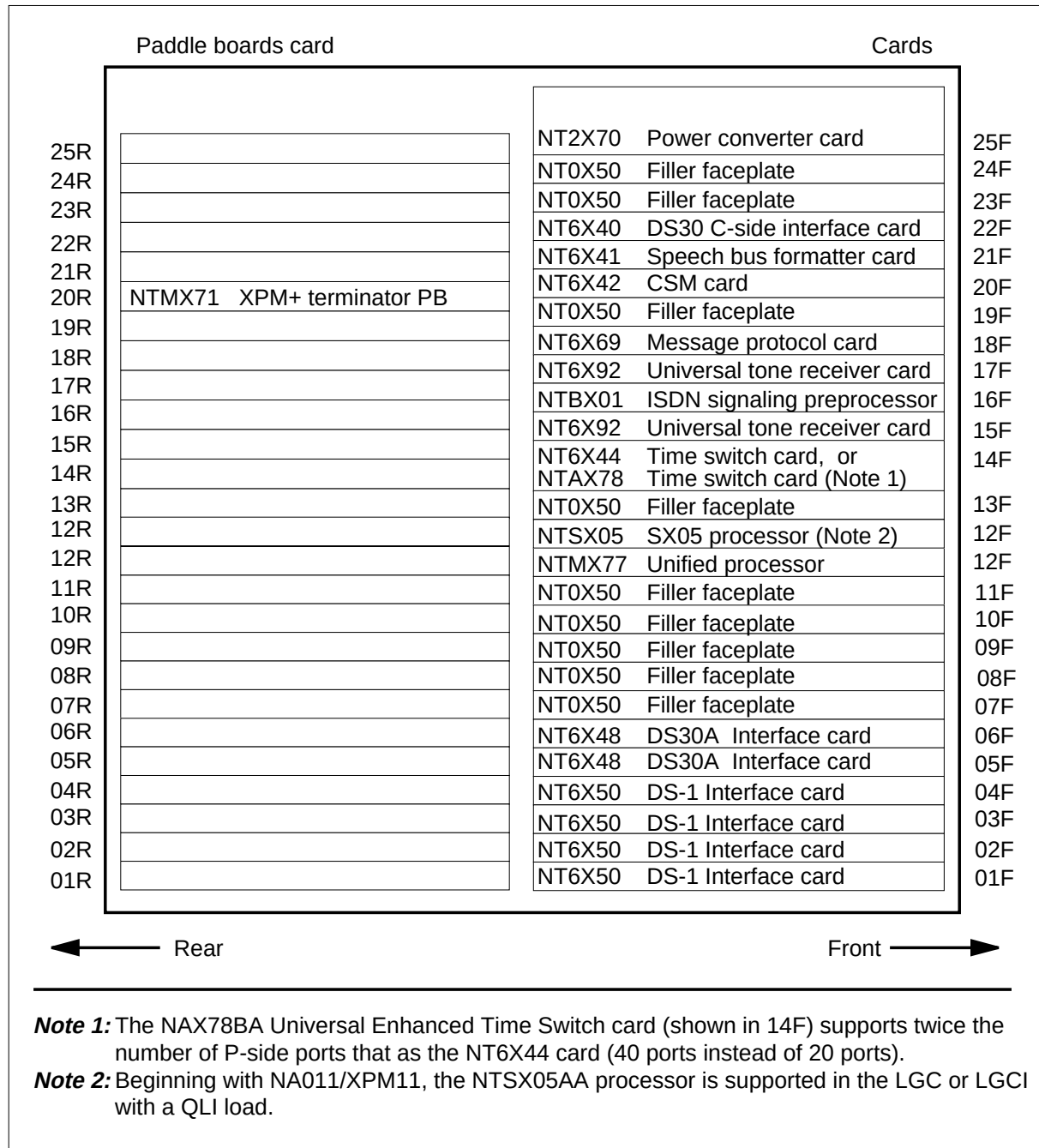
PM LGC minor (continued)

Summary of clearing a PM LGC minor alarm



PM LGC minor (continued)

LGC shelf design



PM LGC
minor (continued)

Clearing a PM LGC minor alarm

At the MAP display

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP display response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If				Do		
an audible alarm rings				step 2		
no audible alarm rings				step 3		

- 2 To silence the alarm, type
>SIL
and press the Enter key.
- 3 To display all the ISTb LGCs, type
>DISP STATE ISTB LGC
and press the Enter key.

Example of a MAP display:

ISTb LGC : 0

Note: If multiple LGCs are ISTb, select an LGC to work on. Repeat this procedure for each LGC that is ISTb.

Record the number of the LGC.

- 4 To post the LGC, type
>POST LGC lgc_no
and press the Enter key.
where
lgc_no
is the number (0 to 255) of the LGC that you recorded in step 3

Example of a MAP display response:

PM LGC minor (continued)

LGC 0 ISTb Links_00S: CSide 0, PSide 0	
Unit0: Act InSv	
Unit1: Inact ISTb Mtce	
If a Mtce flag Do	
appears next to either unit	step 5
does not appear	step 6
5	Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.
If the LGC minor alarm Do	
remains	step 6
changes	step 35
clears	step 36
6	Select an LGC unit to recover.
If Do	
one unit is ISTb and one unit is InSv	step 7
both units are ISTb	Work on the inactive unit and go to step 11.
one unit is ManB and one unit is ISTb or InSv	Work on the manually busy unit and go to step 11.
7	Determine if the ISTb unit is active or inactive.
If the ISTb unit Do	
is active	step 8
is inactive	Work on the in-service trouble unit and go to step 11.

PM LGC minor (continued)

8

**CAUTION****Possible loss of service**

If the procedure directs you to perform a cold SWACT, perform this activity during a period of low traffic. If you perform a cold SWACT during other periods of traffic, the system drops all calls that the LGC handles.

To switch the activity of the units, type

>SWACT

and press the Enter key.

The switch determines if you must perform a cold SWACT or a warm SWACT. The switch shows a confirmation prompt for the selected SWACT.

If the SWACT	Do
cannot continue	step 9
can continue	step 10

9 To reject the prompt, type

>NO

and press the Enter key.

The system discontinues the SWACT. Go to step 34.

10 To confirm the SWACT, type

>YES

and press the Enter key.

The switch switches the activity between the active unit and the inactive unit. A Mtce flag appears during the switch of activity. Wait until the flag disappears before you proceed.

If the MAP response	Do
is SWACT Passed	Work on the inactive unit and go to step 11.
is SWACT failed Reason: XPM SWACTback	step 34
is SWACT refused by SWACT controller	step 34

PM LGC minor (continued)

- 11** To determine the cause of the ISTb condition, type

>QUERYPM FLT

and press the Enter key.

Note: An in-service trouble condition for an LGC can be the result of multiple causes. The LGC and LGC units remain ISTb until all the in-service trouble conditions clear.

If the MAP response	Do
is Dynamic data sync in progress	step 12
is Superframe sync in progress	step 12
is CLASS Modem Resource Card 6X78 out of service	step 13
is CMR Load not present	step 16
is Static data mismatch with CC	step 19
is P-side links out of service	step 21
is C-side links out of service	step 31
is other than listed here	step 34

- 12** Wait 5 min for the system to return the LGC to service.

If the LGC minor alarm	Do
clears	step 36
does not clear	step 34

PM LGC minor (continued)

13



CAUTION

Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR card, type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the LGC unit (0 or 1) that contains the CMR card

14 To test the CMR card, type

>TST UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the LGC unit (0 or 1) that contains the CMR card

If the TST command	Do
fails	step 15
passes	step 18

At the equipment frame

15 Replace the CMR card (NT6X78). Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 17.

At the MAP display

16 To manually busy the CMR card, type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the LGC unit (0 or 1) that contains the CMR card

PM LGC minor (continued)

- 17** To load the CMR card, type
>LOADPM UNIT unit_no CMR
 and press the Enter key.
where
unit_no
 is the number of the LGC unit (0 or 1) that contains the CMR card

If the LOADPM command	Do
passes	step 18
fails, and you replaced the CMR card	step 34
fails, and you did not replace the CMR card	step 15

- 18** To return the LGC unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the LGC unit (0 or 1)

If the RTS command	Do
passes, and the LGC returns to service	step 36
passes, and the LGC does not return to service	step 33
fails	step 34

19



CAUTION

Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize traffic interruption.

PM LGC
minor (continued)

To manually busy the inactive in-service trouble LGC unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LGC unit (0 or 1)

20 To return the LGC unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LGC unit (0 or 1)

If the RTS command

Do

passes, and the LGC returns to service step 36

passes, and the LGC does not re- turn to service step 33

fails step 34

21 To identify the out-of-service P-side links, type

>TRNSL P

and press the Enter key.

Example of a MAP display response:

Link 0;	LCM HOST 05 0	0;Cap MS;Status:ok	;MsgCond:OPN
Link 1;	LCM HOST 05 0	0;Cap S;Status:ok	
Link 2;	LCM HOST 05 0	0;Cap MS;Status:ok	;MsgCond:OPN
Link 3;	LCM HOST 05 0	0;Cap S;Status:ok	
Link 4;	LCM HOST 05 1	0;Cap MS;Status:ok	;MsgCond:OPN
Link 5;	LCM HOST 05 1	0;Cap S;Status:ok	
Link 18;	LCM HOST 05 4	0;Cap MS;Status:ok	;MsgCond:OPN
Link 19;	LCM HOST 05 4	0;Cap S;Status:ok	

Note: Links 6 to 17 do not appear in this example.

PM LGC minor (continued)

- 22** Record the number and state of each out-of-service P-side link.
- Note:** P-side links with the status OK are in service. Any other status indicates an out-of-service P-side link. The MAP display can identify the P-side links as a CARRIER.

If the out-of-service links	Do
are carriers	step 23
are links	step 24

- 23** Clear the Trks alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

If the LGC minor alarm	Do
clears	step 36
does not clear	step 34

- 24** Choose a link on which to work.

If the link	Do
is SysB	step 25
is ManB	step 26

- 25** To manually busy the link, type
>BSY LINK link_no
 and press the Enter key.
where
link_no
 is the number of the link (0 to 19)

- 26** The test the link, type
>TST LINK link_no
 and press the Enter key.
where
link_no
 is the number of the link (0 to 19)

If the TST command	Do
passes	step 27
fails, and the system generates a card list	step 28

PM LGC**minor** (continued)

	If the TST command	Do
	fails, and the system does not generate a card list	step 34
27	To return the link to service, type >RTS LINK link_no and press the Enter key. where link_no is the number of the link (0 to 19)	
	If the RTS command	Do
	fails, and the system generates a card list	step 28
	fails, and the system does not generate a card list	step 34
	passes, and other out-of-service links are present	step 24
	passes and the LGC remains ISTb	step 34
	passes and the LGC is InSv	step 36

At the equipment frame

- 28** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

At the MAP display

- 29** To return the link to service, type

>RTS LINK link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 19)

If the RTS command	Do
fails, and you did not replace all cards on the list	step 30
fails, and you replaced all cards on the list	step 34
passes, and other out-of-service links are present	step 24
passes, and the LGC remains ISTb	step 34

PM LGC minor (continued)

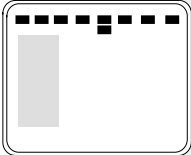
	If the RTS command	Do
	passes, and the LGC minor alarm clears	step 36
30	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and go to step 29.	
31	Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.	
32	To post the LGC, type >PM;POST LGC lgc_no and press the Enter key. <i>where</i> lgc_no is the number of the LGC (0 to 255)	
	If	Do
	the LGC minor alarm clears	step 36
	the LGC is ISTb because one unit is ISTb or CBSy	step 33
	other than listed here	step 34
33	To determine the cause of the ISTb condition, type >QUERYPM FLT and press the Enter key. Note: In-service trouble condition for an LGC can be the result of a multiple causes. The LGC and the LGC units remain ISTb until all the in-service trouble conditions clear.	
	If the MAP response	Do
	is Dynamic data sync in progress	step 12
	is Superframe sync in progress	step 12
	is CLASS Modem Resource Card 6X78 out of service	step 13
	is CMR Load not present	step 16
	is Static data mismatch with CC	step 19
	is P-side links out of service	step 21
	is C-side links out of service	step 31

PM LGC
minor (end)

	If the MAP response	Do
	indicates a fault you cleared during this procedure	step 34
	is other than listed here	step 34
34	You need additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps that you performed to clear this alarm. Go to step 36.	
35	The LGC minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.	
36	The procedure is complete.	

PM LIM critical

Alarm display

	CM	MS	IOD	Net	PM 1LIM *C*	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	.	.	.	.	.	.

Indication

At the MTC level of the MAP display, LIM (preceded by a number) appears under the PM header of the alarm banner. The LIM indicates a critical alarm for a link interface module (LIM).

Meaning

A minimum of one LIM is either system busy (SysB) or system busy resource not available (SysB RU). An LIM is system busy when both LIM units are out of service, and a minimum of one unit is system busy.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

Result

All application specific units (ASUs) and all signaling links associated with this LIM are out of service.

Common procedures

The following common procedures are referenced in this procedure:

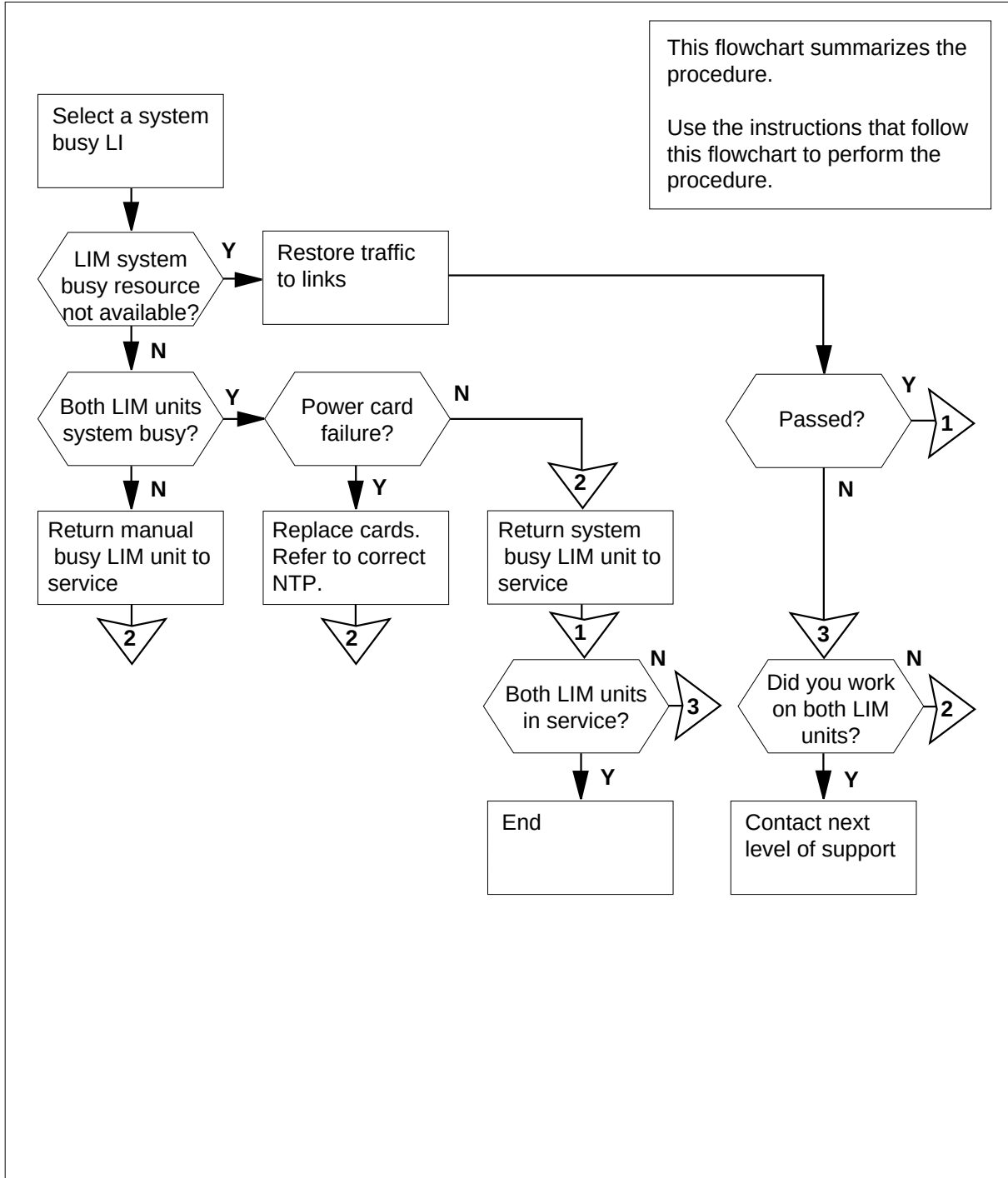
- *Returning LIM-to-MS links to service*
- *Restoring LIM unit cross-links*
- *Recovering link peripheral processors*

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIM critical (continued)

Summary of clearing a PM LIM critical alarm



PM LIM critical (continued)

Clearing a PM LIM critical alarm



CAUTION

Loss of service

Do not use this procedure to recover LIM units that are system busy due to a loss of A and B power feeds to the LPP. Refer instead to the procedure *Recovering link peripheral processors* in *Recovery Procedures*.



WARNING

Loss of service

Do not use this procedure to recover LIM units that are system busy caused by loss of power. Loss of A and B power feeds to the LPP cause the LIM units to be system busy. Refer to the procedure *Recovering link peripheral processors* in *Recovery Procedures*.



WARNING

Delay in returning equipment to service

If the system generates a minimum of two card lists, replace all cards on the short card list. Replace the cards on the short card list before you replace any cards in a following full card list.

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	0	0	0	0	39

- 2 To display all system busy LIMs, type

>DISP STATE SYSB LIM

and press the Enter key.

PM LIM critical (continued)

Example of a MAP response:

SysB LIM: 1

- 3 To post a system busy LIM, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of a system busy LIM (0 to 16)

Example of a MAP display:

```
LIM 1 SysB (RU)
Unit0: SysB (RU) Links_00S Taps_00S
Unit1: SysB (RU) 2 5
```

- 4 Determine if the system busy LIM is resource not available (RU).

Note: The RU status appears to the right of the LIM state in the MAP display.

If the state of the LIM	Do
is SysB (RU)	step 29
is SysB	step 5

- 5 Determine the state of each unit of the system busy LIM.

Note: The unit state appears to the right of Unit0 and Unit1 on the MAP display.

If	Do
one LIM unit is ManB and the other LIM unit is SysB	step 17
both LIM units are SysB	step 1

At the LPP cabinet

- 6 An entire local message switch (LMS) shelf may have lost power due to the failure of both NT9X30 power converter cards. Check for a power fault at the

PM LIM critical (continued)

link peripheral processor (LPP) by examining the fail lamps of the two NT9X30 cards on the LMS shelf.

Note: A failed NT9X30 card on the left side of the LMS shelf is associated with LIM unit 0. A failed NT9X30 card on the right side of the LMS shelf is associated with LIM unit 1.

If	Do
the fail lamp of at least one NT9X30 card is lit	step 7
the fail lamp of neither NT9X30 card is lit	step 16

- 7 To force a LIM unit that has a failed power converter to busy, type

>BSY UNIT unit_no FORCE

and press the Enter key.

where

unit_no

is the number of the system busy LIM unit (0 or 1)

- 8 Replace the NT9X30 power converter card in the LIM unit. Perform the correct card procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Replace the NT9X30 or NT9X31 power converter card in the LIM unit. Perform the correct card procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

- 9 To load the LIM unit, type

>LOADPM UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the manual busy LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 14
failed and the system generates a card list	step 10
failed and the system does not generate a card list	step 40

PM LIM

critical (continued)

- 10 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
 - 11 Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
 - 12 To load the LIM unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the manual busy LIM unit (0 or 1)
- | If the LOADPM command | Do |
|---|---------|
| passed | step 14 |
| failed, and you did not replace all the cards on the list | step 13 |
| failed, and you replaced all the cards on the list | step 40 |
- 13 Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
 Go to step 12.
 - 14 To return the LIM unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the manual busy LIM unit (0 or 1)
- | If the RTS command | Do |
|--------------------|---------|
| passed | step 15 |
| failed | step 40 |
- 15 Determine if a power fault is present on the mate LIM unit.
- | If the fail lamp of the NT9X30 power converter card of the mate LIM unit | Do |
|--|--------|
| is lit | step 7 |

PM LIM critical (continued)

	If the fail lamp of the NT9X30 power converter card of the mate LIM unit	Do
	is not lit	step 16
16	To manually busy a system busy LIM unit, type >BSY UNIT unit_no FORCE and press the Enter key. <i>where</i> unit_no is the number of the system busy LIM unit (0 or 1) Go to step 19.	
17	Work on the manual busy LIM unit first.	
18	Determine why the LIM unit is manual busy from office records or from operating company personnel. When you have permission, continue with this procedure to return the LIM unit to service.	
19	To test the manual busy LIM unit, type >TST UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the manual busy LIM unit (0 or 1)	
	If the TST command	Do
	passed	step 39
	failed, and the system generates a card list	step 20
	failed, and the system does not generate a card list	step 21
20	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	
21	To set the LIM units again, type >PMRESET UNIT unit_no and press the Enter key. <i>where</i>	

PM LIM

critical (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the PMRESET command	Do
	passed	step 28
	failed and the system generates a card list	step 22
	failed and the system does not generate a card list	step 23
22	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record the listed cards at these steps.	
23	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the LOADPM command	Do
	passed	step 28
	failed and the system generates a card list	step 24
	failed and the system did not generate a card list	step 42
24	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record the listed cards at these steps.	
25	Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.	
26	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i>	

PM LIM critical (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the LOADPM command	Do
	passed	step 28
	failed, and you did not replace all the cards on the list you recorded	step 27
	failed, and you replaced all the cards on the list you recorded	step 42
27	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point. Go to step 26.	
28	To return the LIM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the manual busy LIM unit (0 or 1)	
	If the RTS command	Do
	passed	step 40
	failed	step 42
29	Determine the state of the LIM units.	
	If	Do
	one LIM unit is SysB (RU)	step 30
	both LIM units are SysB (RU)	step 31
30	To manually busy the LIM unit, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the SysB (RU) LIM unit (0 or 1) Go to step 32.	

PM LIM critical (continued)

- 31** To manually busy LIM unit 0, type
>BSY UNIT 0
 and press the Enter key.
- 32** To display more information about the fault, type
>QUERYPM UNIT unit_no FLT
 and press the Enter key.
where
unit_no
 is the number of the manual busy LIM unit (0 or 1)

If the response	Do
is LIM UNIT HAS NO HOST LINKS.	step 33
is LIM UNIT HAS NO CLOCKING LINKS.	step 33
is LIM UNIT HAS NO MS CONNECTIVITY.	step 33
is LIM UNIT IS ISOLATED FROM INSV MS.	step 33
is LIM UNIT CROSS-LINKS OOS.	step 37
is LIM UNIT COMMUNICATION FAILURE.	step 38
is LIM UNIT NOT RESPONDING.	step 38
is LIM unit data sync failure	step 40
is other than listed here	step 40

- 33** To access the MS level of the MAP display, type
>MS
 and press the Enter key.

Example of a MAP display:

	Message	Switch	Clock		Shelf 0	Inter-MS	Link 0	1
MS 0	.				M	Free	.	.
MS 1	.				Slave		.	.

Note: In the previous example, a dot (.) under the Message Switch header indicates an in-service MS plane. The letter S indicates a system busy MS. The letter M indicates a manual busy MS. The letter L indicates an in-service trouble MS. The letter O indicates an offline MS.

PM LIM critical (continued)

- 34** Determine the state of both MS plane 0 and 1.
- | If both MS 0 and 1 | Do |
|--|---------|
| are in service (.) or are in-service trouble (I) | step 36 |
| are other than listed here | step 35 |
- 35** Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, go to step 40.
- 36** Perform the procedure *Returning LIM-to-MS links to service* in this document. When you have completed the procedure, return to this point.
- 37** Perform the procedure *Restoring LIM unit cross-links* in this document. When you have completed the procedure, return to this point. Go to step 40.
- 38** To test the LIM unit through the mate unit, type
>TST UNIT unit_no VIAMATE
 and press the Enter key.
where
 unit_no
 is the number of the manual busy LIM unit (0 or 1)
- | If the TST command | Do |
|--------------------|---------|
| passed | step 39 |
| failed | step 42 |
- 39** To return the LIM unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
 unit_no
 is the number of the manual busy LIM unit (0 or 1)
- | If the RTS command | Do |
|--------------------|---------|
| passed | step 40 |
| failed | step 42 |

PM LIM
critical (end)

40 Determine the state of the LIM units.

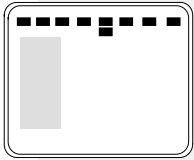
If	Do
both LIM units are in service	step 41
either LIM unit is SysB.	step 16
one LIM unit is SysB RU.	step 30
either LIM unit is SysB RU.	step 31

41 The procedure is complete.

42 For additional help, contact the next level of support.

PM LIM major

Alarm display

	CM	MS	IOD	Net	PM 1LIM M	CCS	Lns	Trks	Ext	APPL
	.	.	.	.		.	.	.	.	.

Indication

At the MTC level of the MAP display, LIM (preceded by a number) appears under the PM header of the alarm banner. The display indicates a major alarm for a link interface module (LIM).

Meaning

A minimum of one LIM is either manual busy (ManB), manual busy resource not available (ManB RU), or in-service trouble (ISTb) with one unit system busy (SysB) and the other unit in-service trouble. A LIM becomes manual busy (Man B) when both LIM units are manual busy.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

Result

A manual busy LIM interrupts service. An LIM with in-service trouble does not interrupt service. A backup LIM unit is not present.

Common procedures

The following common procedures are referenced in this procedure:

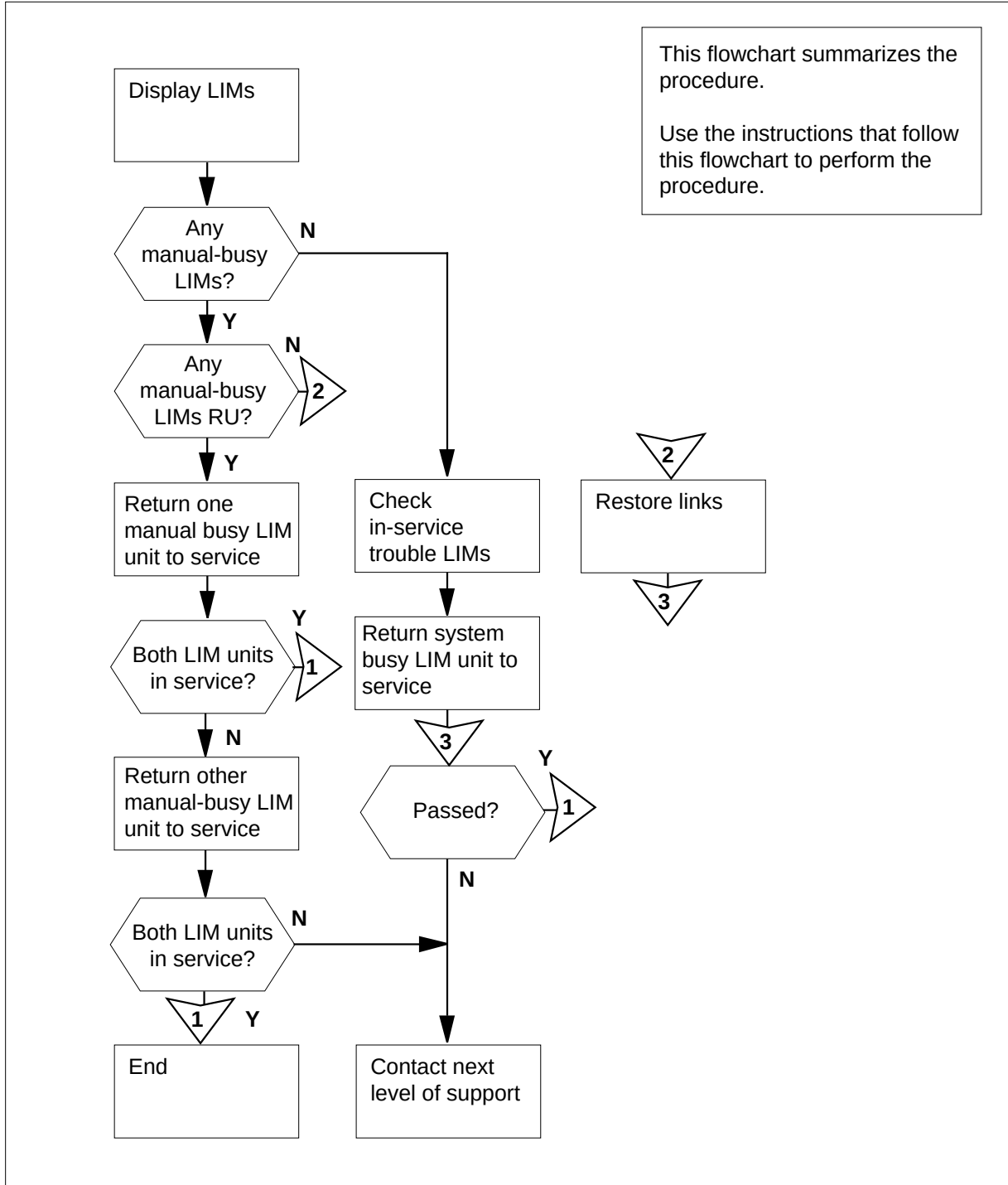
- *Returning LIM-to-MS links to service*
- *Returning LIM-to-MS links to service for an ELPP*
- *Restoring LIM unit cross-links*
- *Recovering link peripheral processors*

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIM major (continued)

Summary of clearing a PM LIM major alarm



PM LIM major (continued)

Clearing a PM LIM major alarm



WARNING

Loss of service

Do not use this procedure to recover LIM units that are out of service caused by a loss of A and B power feeds to the link peripheral processor (LPP) or enhanced LPP (ELPP). Refer instead, to the procedure *Recovering link peripheral processors* or *Recovering enhanced link peripheral processors* in the *Recovery Procedures*.



WARNING

Delay in returning equipment to service

If the system generates more than one card list, replace all cards on the short card list. Replace the cards on the short list before you replace any cards in a following full card list.

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI ; MTC ; PM

and press the Enter key.

Example of a MAP:

PM	SysB	ManB	OffL	CBsy	ISTb	InSv
	0	1	0	0	0	39

- 2 To display all the manual-busy LIMs, type

>DISP STATE MANB LIM

and press the Enter key.

If	Do
ManB LIMs appear	step 3
the response is None	step 26

- 3 To post a manual busy LIM, type

>POST LIM lim_no

and press the Enter key.

PM LIM major (continued)

where

lim_no

is the number of the manual-busy LIM (0 to 16)

Example of a MAP display:

```
LIM 1  ManB  (RU)
              Links_00S  Taps_00S
Unit0: ManB  (RU)          6      5
Unit1: ManB  (RU)          6      5
```

- 4 Determine if the manual-busy LIM is resource unavailable (RU).

Note: The RU status appears to the right of the LIM state in the MAP display.

If the state of the LIM is	Do
ManB (RU)	step 42
ManB	step 5

- 5 Determine from office records or from office personnel why the LIM unit is manual busy.
When you have permission, continue with this procedure to return the LIM to service.

- 6 To test LIM unit 0, type
>TST UNIT 0
and press the Enter key.

If the TST command	Do
passed	step 15
failed, and the system generates a card list	step 7
failed, and the system does not generate a card list	step 8

- 7 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 8 To reset the LIM unit, type
>PMRESET UNIT unit_no
and press the Enter key.

where

PM LIM major (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the PMRESET command	Do
	passed	step 15
	failed, and the system generates a card list	step 9
	anything else	step 10
9	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record all cards listed in all steps.	
10	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. where unit_no is the number of the LIM unit (0 or 1)	
	If the LOADPM command	Do
	passed	step 15
	failed, and the system generates a card list	step 11
	anything else	step 52
11	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record all cards listed in all steps.	
12	Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.	
13	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. where	

PM LIM major (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the LOADPM command	Do
	passed	step 15
	failed, and you did not replace all the cards on the list you re-recorded	step 14
	failed, and you replaced all the cards on the list you recorded	step 52
14	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point. Go to step 13.	
15	To return the LIM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the manual-busy LIM unit (0 or 1)	
	If the RTS command	Do
	passed	step 16
	failed	step 52
16	To test LIM unit, type >TST UNIT and press the Enter key.	
	If the TST command	Do
	passed	step 25
	failed, and the system generates a card list	step 17
	failed, and the system does not generate a card list	step 18
17	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	

PM LIM major (continued)

- 18** To reset the LIM unit, type
>PMRESET UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the LIM unit (0 or 1)
- | If the PMRESET command | Do |
|--|---------|
| passed | step 25 |
| failed, and the system generates a card list | step 19 |
| anything else | step 20 |
- 19** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
Note: If the system generates a card list at any previous step, make sure you record all cards listed in all steps.
- 20** To load the LIM unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the LIM unit (0 or 1)
- | If the LOADPM command | Do |
|--|---------|
| passed | step 25 |
| failed, and the system generates a card list | step 21 |
| anything else | step 52 |
- 21** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
Note: If the system generates a card list at any previous step, make sure you record all cards listed in all steps.
- 22** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 23** To load the LIM unit, type
>LOADPM UNIT unit_no

PM LIM major (continued)

and press the Enter key.

where

unit_no
is the number of the LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 25
failed, and you did not replace all the cards on the list you recorded	step 24
failed, and you replaced all the cards on the list you recorded	step 52

- 24** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Go to step 23.

- 25** To return the LIM unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no
is the number of the manual busy LIM unit (0 or 1)

If the RTS command	Do
passed	step 53
failed	step 52

- 26** To post the set of in-service trouble LIMs, type

>POST LIM ISTB

and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTB
Unit0: SysB (RU)      Links_00S  Taps_00S
Unit1: ISTB           6           5
                    2           0
```


PM LIM major (continued)

27	Determine the state of the LIM units.			
		<table border="0" style="width: 100%;"> <tr> <td style="text-align: left; width: 50%;">If</td> <td style="text-align: right; width: 50%;">Do</td> </tr> </table>	If	Do
If	Do			
	one LIM unit is SysB RU and the other unit is ISTb	step 40		
	one LIM unit is SysB and the other unit is ISTb	step 29		
	the state of the LIM units is not SysB and not ISTb	step 28		
28	To display the next LIM in the posted set of in-service trouble LIMs, type >NEXT and press the Enter key. Go to step 27.			
29	Work on the system busy LIM unit.			
30	To force the LIM unit with a failed NT9X30 card to busy, type >BSY UNIT unit_no FORCE and press the Enter key. <i>where</i> unit_no is the number of the system busy LIM unit (0 or 1)			
31	Failure of the NT9X30 or NT9X31 power converter can cause the LIM unit to be system busy. To check for a power fault at the LPP or ELPP, examine the fail lamp of the NT9X30 or NT9X31 card. This card powers the system busy LIM unit that you are working on. Note 1: An NT9X30 card in slot 04F powers LIM unit 0. An NT9X30 card in slot 36F powers LIM unit 1. Note 2: An NT9X31 card in slot 1 powers LIM unit 0. An NT9X31 card in slot 33 powers LIM unit 1.			
		<table border="0" style="width: 100%;"> <tr> <td style="text-align: left; width: 50%;">If</td> <td style="text-align: right; width: 50%;">Do</td> </tr> </table>	If	Do
If	Do			
	the fail lamp of at least one NT9X30 or NT9X31 card is lit	step 32		
	no NT9X30 or NT9X31 card fail lamps are lit	step 33		
32	Replace the NT9X30 or NT9X31 power converter card in the LIM unit. Perform the correct card replacement procedures in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.			

PM LIM major (continued)

- 33** To load the LIM unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where

unit_no
is the number of the manual busy LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 34
failed, and the system generates a card	step 35
failed, and the system does not generate a card list	step 52

- 34** To return the LIM unit to service, type
>RTS UNIT unit_no
and press the Enter key.
where

unit_no
is the number of the manual busy LIM unit (0 or 1)

If the RTS command	Do
passed	step 50
failed, and the system generates a card list	step 35
failed, and the system does not generate a card list	step 52

- 35** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 36** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 37** To load the LIM unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where

PM LIM major (continued)

unit_no
is the number of the manual busy LIM unit (0 or 1)

	If the LOADPM command	Do
	passed	step 39
	failed, and you did not replace all the cards on the list	step 38
	failed, and you replaced all the cards on the list	step 52
38	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point. Go to step 37.	
39	To return the LIM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the manual busy LIM unit (0 or 1)	
	If the RTS command	Do
	passed	step 50
	failed	step 52
40	Work on the system-busy RU LIM unit.	
41	To force the system-busy RU LIM unit to busy, type >BSY UNIT unit_no FORCE and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
42	To display more information about the fault, type >QUERYPM UNIT unit_no FLT and press the Enter key. <i>where</i>	

PM LIM major (continued)

unit_no
is the number of the LIM unit (0 or 1)

If the response is	Do
LIM UNIT HAS NO HOST LINKS.	step 43
LIM UNIT HAS NO CLOCKING LINKS.	step 43
LIM UNIT HAS NO MS CONNECTIVITY.	step 43
LIM UNIT IS ISOLATED FROM INSV MS.	step 43
LIM UNIT CROSS-LINKS OOS.	step 47
LIM UNIT COMMUNICATION FAILURE.	step 48
LIM UNIT NOT RESPONDING.	step 48
LIM UNIT DATA SYNC FAILURE.	step 52
other than listed here	step 52

- 43** To access the MS level of the MAP display, type
>MS
 and press the Enter key.
Example of a MAP display:

```

      Message Switch  Clock  Shelf 0  Inter-MS Link 0 1
MS 0      .          M Free  .          .  .
MS 1      .          Slave  .          .  .

```

Note: In the previous example, (.) under the Message Switch header indicates an in-service MS plane. The letter S indicates a system busy MS. The letter M indicates a manual busy MS. The letter L indicates an in-service trouble MS. The letter O indicates an offline MS.

- 44** Determine the state of both MS plane 0 and 1.

If both MS 0 and 1 are	Do
in service (.) or in-service trouble (I)	step 46
other than listed here	step 45

- 45** Return the MS to service. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point. Go to step 50.

- 46** For LPPs and LPPs with fiber links perform the procedure *Returning LIM-to-MS links to service* in this document. For ELPPs, perform the

PM LIM major (continued)

procedure *Returning LIM-to-MS links to service for an ELPP* in this document. Complete the procedure and return to this point.

Go to step 50.

- 47** Perform the procedure *Restoring LIM unit cross-links* in this document. Complete the procedure and return to this point.

Go to step 50.

- 48** To test the LIM unit through the mate unit, type

>TST UNIT unit_no VIAMATE

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

Example of a MAP response:

LIM lim_no UNIT unit_no test initiated

If the TST command	Do
passed	step 49
failed	step 52

- 49** To return the LIM unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

If the RTS command	Do
passed	step 50
failed	step 52

- 50** Determine the state of the mate LIM unit.

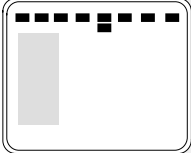
If the mate LIM unit is	Do
ManB	step 16
ManB (RU)	step 42
ISTb	step 51

PM LIM
major (end)

	If the mate LIM unit is	Do
	InSv	step 52
51	Perform the procedure <i>Clearing a PM LIM minor alarm</i> in this document to return the in-service trouble LIM unit to service.	
52	For additional help, contact the next level of support.	
53	The procedure is complete.	

PM LIM minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LIM	.	.	.	.	.

Indication

At the MTC level of the MAP display, LIM preceded by a number appears under the PM header of the alarm banner, and indicates a link interface module (LIM) minor alarm.

Meaning

One or more LIMs are in-service trouble. A LIM becomes in-service trouble when one of its units is manual busy or in-service trouble, both of its units are in-service trouble, one or more of its F-buses are in-service trouble, or when a minimum of one of its F-buses is manually busy and the other is in-service trouble.

The number of LIMs affected is indicated by the number under the PM header of the alarm banner.

Impact

There is no impact on service.

Common procedures

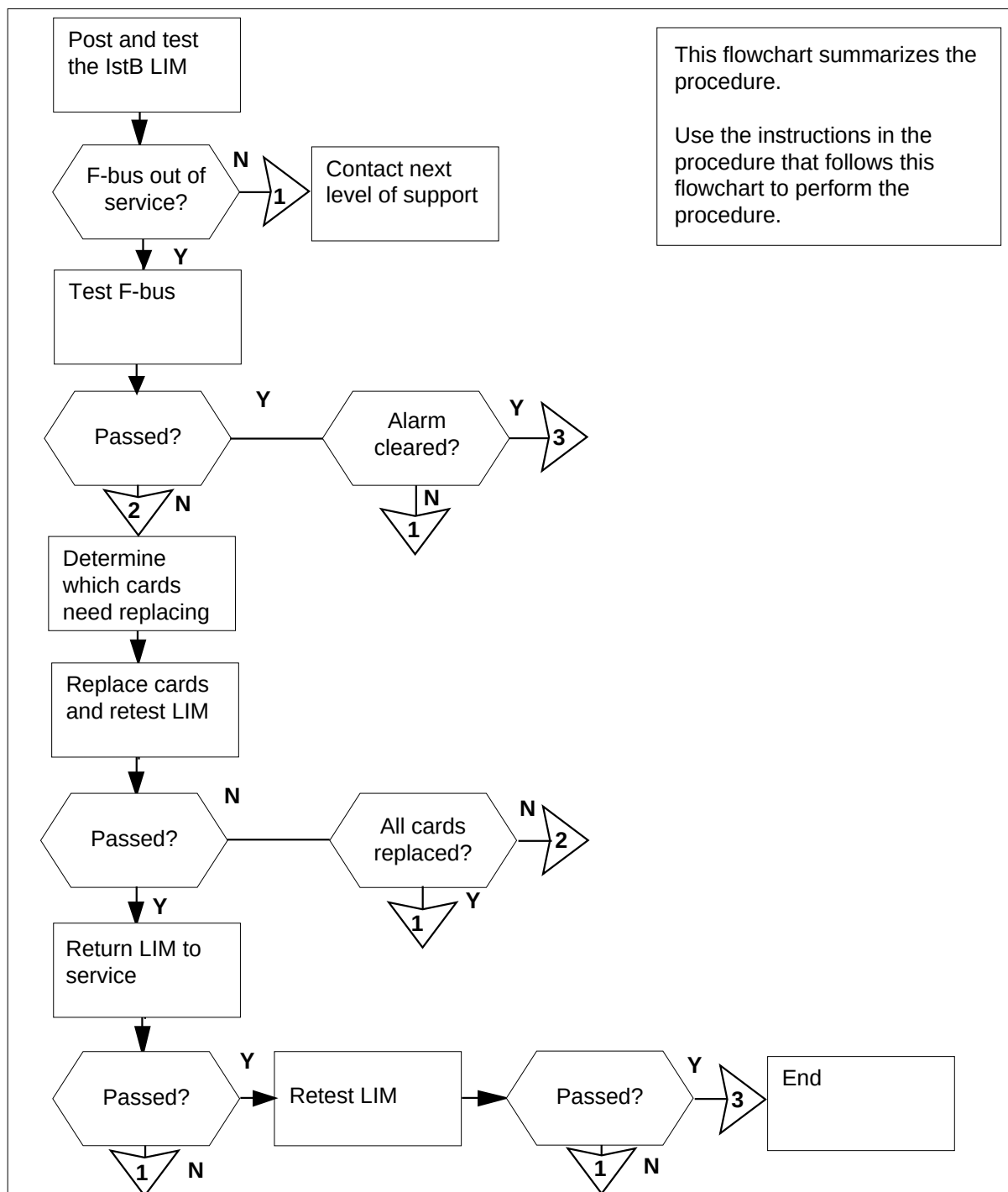
Restoring LIM unit cross links is referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure that follows the flowchart to clear the alarm.

PM LIM minor (continued)

Summary of Clearing a PM LIM minor alarm



PM LIM minor (continued)

Clearing a PM LIM minor alarm

At the MAP terminal

- 1 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM

and pressing the Enter key.

Example of a MAP display:

PM	SysB	ManB	OffL	CBSy	ISTb	InSv
	0	1	0	0	2	39

- 2 Display all in-service trouble LIMs by typing

>DISP STATE ISTB LIM

and pressing the Enter key.

- 3 Post the first in-service trouble LIM by typing

>POST LIM lim_no

and pressing the Enter key.

where

lim_no

is the number of the in-service trouble LIM (0 to 16)

Example of a MAP display for link peripheral processors (LPP):

LIM 1 ISTb	Links_00S	Taps_00S
Unit0: ISTb	0	0
Unit1: InSv	0	0

- 4 Determine the state of the LIM units.

If	Do
a LIM unit is ManB	step 8
a LIM unit is ISTb	step 5

- 5 Display more information about the fault by typing

>QUERYPM UNIT unit_no FLT

and pressing the Enter key.

where

PM LIM minor (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the response	Do
	indicates that the LIM unit crosslinks are out of service	step 6
	indicates that a fault exists, and a card list is generated	step 10
	indicates that the F-bus is ISTb	step 25
	indicates anything else	step 7
6	Perform the procedure <i>Restoring LIM unit cross-links</i> . When you have completed the procedure, return to this point. Go to step 29.	
7	Test the in-service trouble LIM unit by typing >TST UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the in-service trouble LIM unit (0 or 1)	
	If the TST command	Do
	passed, and the LIM unit is INSv	step 29
	passed, and the LIM unit is still ISTb	step 30
	failed, and a card list is generated	step 10
	failed, and no card list is generated	step 30
8	Determine from office records or from office personnel why the unit is manual busy. When permitted, return to this point.	
9	Test the manual-busy LIM unit by typing >TST UNIT unit_no and pressing the Enter key. <i>where</i>	

PM LIM minor (continued)

unit_no
is the number of the manual-busy LIM unit (0 or 1)

	If the TST command	Do
	passed	step 19
	failed, and a card list is generated	step 11
	failed, and no card list is generated	step 30
10	Manually busy the LIM unit by typing >BSY UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
11	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. Note: If a card list was generated in another step, ensure that all cards listed in all steps are recorded.	
12	Reset the LIM unit by typing >PMRESET UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the PMRESET command	Do
	passed	step 19
	failed, and a card list is generated	step 13
	failed, and no card list is generated	step 14
13	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. Note: If a card list was generated in another step, ensure that all cards listed in all steps are recorded.	

PM LIM
minor (continued)

- 14** Load the LIM unit by typing
>LOADPM UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the LIM unit (0 or 1)
-
If the LOADPM command	Do
passed	step 19
failed, and a card list is generated	step 15
failed, and no card list is generated	step 30
-
- 15** Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list.
Note: If a card list was generated in another step, ensure that all cards listed in all steps are recorded.
- 16** Replace the first card on the list. Perform the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.
- 17** Load the LIM unit by typing
>LOADPM UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the LIM unit (0 or 1)
-
If the LOADPM command	Do
passed	step 19
failed, and you have not replaced all the cards on the list	step 18
failed, and you have replaced all the cards on the list	step 30
-
- 18** Replace the next card on the list. Perform the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.
Go to step 17.

PM LIM minor (continued)

- 19** Return the LIM unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the manual-busy LIM unit (0 or 1)

If the RTS command	Do
passed	step 25
failed, and a card list is generated	step 20
failed, and no card list is generated	step 30

- 20** Determine if there are any cards on the list that have not been replaced as a result of performing this procedure.

If	Do
there are cards on the list that have not yet been replaced as a result of performing this procedure	step 16
all cards on the list have been replaced as a result of performing this procedure	step 30

- 21** Access the F-bus level of the MAP display by typing

>FBUS

and pressing the Enter key.

Example of a MAP display:

```

LIM 1 ISTb
Unit0: ISTb          Links_00S  Taps_00S
Unit1: InSv          .          19
                          .          2
Tap:  0   4   8  12  16  20  24  28  32
FBus0: ManB         BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv         .... .... .... .... ---- ---- ---- ----

```

PM LIM
minor (continued)

- 22** Determine the state of the F-bus that is associated with the LIM unit you are working on.

Note: F-bus 1 is associated with LIM unit 1. F-bus 0 is associated with LIM unit 0. The F-bus state is displayed to the right of the words FBus0 or FBus1 in the MAP display.

If the F-bus state is	Do
InSv	step 29
ManB	step 23
IS t b	step 24
anything else	step 29

- 23** Return the F-bus to service by typing

>RTS FBUS fbus_no

and pressing the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

If the RTS command	Do
passed	step 29
passed, but the F-bus is IS t b	step 24
anything else	step 30

- 24** Determine the state of the taps on the F-bus.

Note: The tap states are displayed in the two rows of characters beneath the numbers 0 to 35, 0 to 23, or 0 to 11, as shown in the example MAP display in step 21.

If the taps on the F-bus are	Do
in service (.), in-service trouble, or(I)manual busy (M)	step 25
system busy (S)	step 30

PM LIM minor (continued)

25

**CAUTION****Loss of service**

Manually busy the F-bus associated with the in-service trouble LIM unit you are working on. Failure to do so results in a loss of service.

**CAUTION****Possible loss of service**

If the *BSY FBUS* command requires confirmation, do not confirm the command. Cancel the command and contact your next level of support.

Manually busy the F-bus associated with the LIM unit you are working on by typing

>BSY FBUS fbus_no

and pressing the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

If the response is	Do
LIM x LIS Y FBus Z	step 27
Busy initiated. LIM x FBus y Busy passed.	step 27
requires confirmation	step 26

26 Cancel the command by typing

>NO

and pressing the Enter key.

Go to step 30.

27 Test the F-bus by typing

>TST FBUS fbus_no

and pressing the Enter key.

where

PM LIM minor (end)

fbus_no
is the number of the F-bus

If the TST command	Do
passed	step 28
failed and a card list is generated	step 15
failed and no card list is generated	step 30

28 Return the F-bus to service by typing

>RTS FBUS fbus_no

and pressing the enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

If the RTS command	Do
passed	step 29
failed and a card list is generated	step 15
failed and no card list is generated	step 30

29 Determine the state of the LIM units.

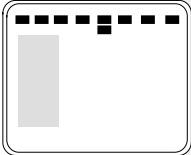
If	Do
both LIM units are INsv	step 31
either LIM unit is ManB or ISTb	step 4
neither of the above conditions are met	step 30

30 For further assistance, contact the personnel responsible for the next level of support.

31 You have completed this procedure.

PM LIMF critical

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LIMF	.	.	.	.	.
					C					

Indication

At the MTC level of the MAP, LIMF (preceded by a number) appears under the PM header of the alarm banner. The LIMF indicates a critical alarm for a link interface module (LIM) F-bus.

Meaning

An LIMF critical alarm indicates that both F-buses of a LIM are system busy or manual busy. This condition causes the LIM to be in-service trouble.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

Result

All application specific units (ASU) on the F-buses and the associated signaling links are out of service.

Common procedures

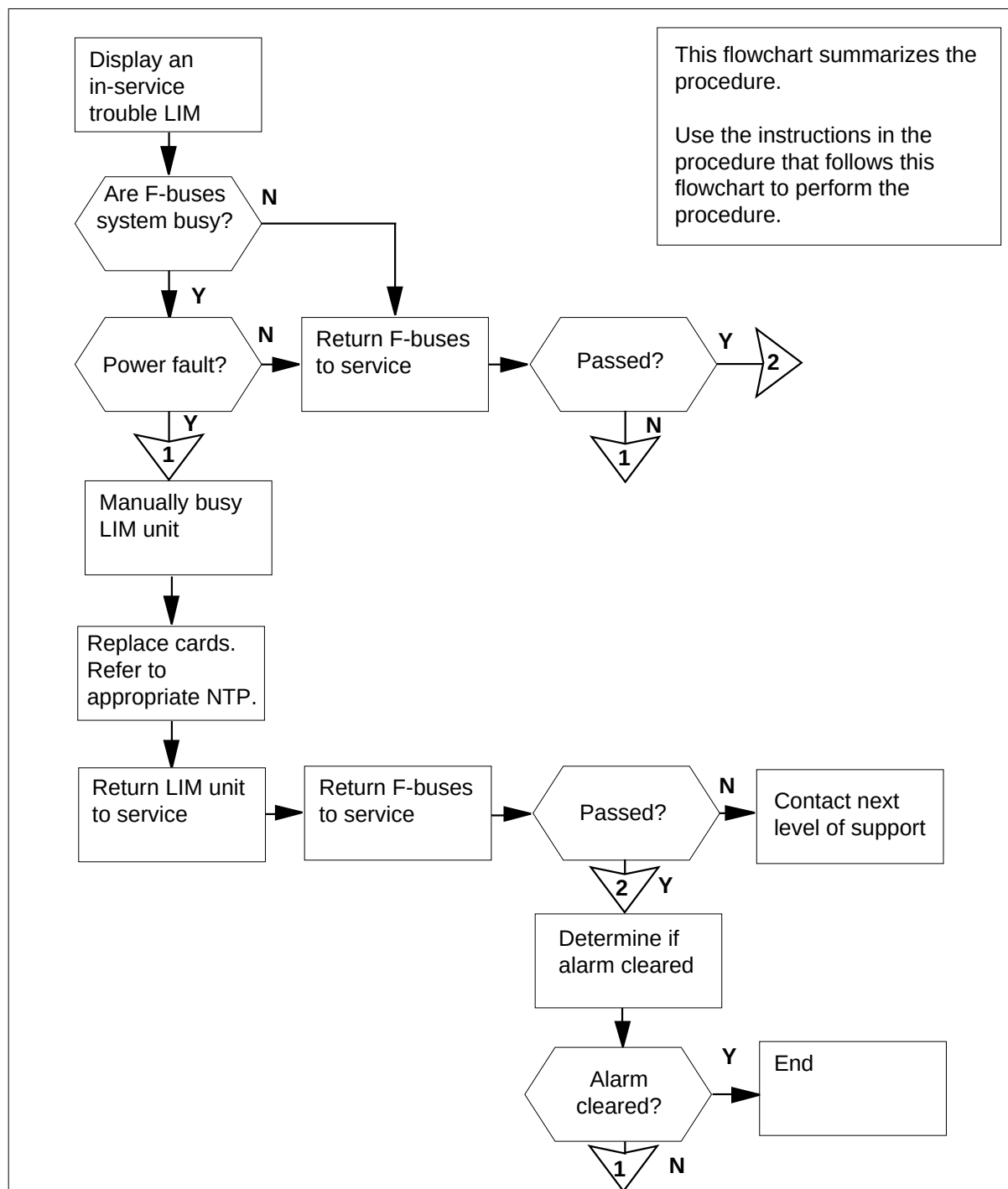
There are no common procedures.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIMF critical (continued)

Summary of clearing a PM LIMF critical alarm



PM LIMF critical (continued)

Clearing a PM LIMF critical alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display:

PM	SysB	ManB	OffL	CBSy	ISTb	InSv
	0	1	0	0	2	39

- 2 To display all in-service trouble LIMs, type

>DISP STATE ISTB LIM

and press the Enter key.

- 3 To post the first in-service trouble LIM, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP response for LPPs:

```
LIM 1 ISTb
                                Links_00S Taps_00S
Unit0: ISTb                    0         36
Unit1: ISTb                    0         36
```

- 4 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTb
                                Links_00S  Taps_00S
Unit0:  ISTb                    .         19
Unit1:  InSv                    .         2
Tap:    0   4   8  12  16        20  24  28  32
FBus0:  ManB                    BBBB BBBB BBBB ----  ----  ----  ---B  BB--
FBus1:  InSv                    ...M .I.. .S.. .... ----  ----  ---.  ...
```

PM LIMF
critical (continued)

Note: In the previous example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 5 Determine the state of the F-buses.

If the state of	Do
one F-bus is ManB	step 13
both F-buses is ManB	step 11
either F-bus is SysB (RU)	step 16
either F-bus is SysB (NA)	step 16
both F-buses is SysB	step 6

- 6 To manually busy the system busy F-buses, type
>BSY FBUS 0; BSY FBUS 1
and press the Enter key.

At the LPP

- 7 Determine the type of power converters used in the LPP.

If the power converters	Do
are NTDX16s	step 12
are NT9X30s	step 8

- 8 Failure of NT9X30 cards on both sides of the link interface shelf (LIS) can cause both F-buses to be system busy. Check for a power fault at the link peripheral processor (LPP). Examine the fail lamps of the NT9X30 power converters.

Note: A failed NT9X30 power converter in slot 4 of the LIS associates with F-bus 0 and LIM unit 0. A failed NT9X30 power converter in slot 36 of the LIS associates with F-bus 1 and LIM unit 1.

If fail lamps of the NT9X30 power converters	Do
are lit	step 9
are not lit	step 12

- 9 Replace the NT9X30 card. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

PM LIMF
critical (continued)

- 10** Determine if other failed NT9X30 power converter cards are present.

If another lit fail lamp on an NT9X30 power converter

Do

is present

step 9

is not present

step 12

- 11** Determine from office records or from operating company personnel why the F-buses are manual busy.
When you have permission, continue this procedure to return the F-buses to service.

At the MAP terminal

- 12** To test F-bus 0, type
>TST FBUS 0
and press the Enter key.

If the TST command

Do

passed

step 27

failed, and the system generates a card list

step 15

failed, and the system does not generate a card list

step 16

- 13** Determine from office records or from operating company personnel why the F-bus is manual busy.
When you have permission, continue this procedure to return the F-bus to service.

- 14** To test the manual busy F-bus, type
>TST FBUS fbus_no
and press the Enter key.
where

fbus_no

is the number of the F-bus (0 or 1)

If the TST command

Do

passed

step 27

failed and the system generates a card list

step 15

PM LIMF critical (continued)

	If the TST command	Do
	failed and the system does not generate a card list	step 16
15	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	

16



CAUTION

Possible loss of service

If the attempt to busy a unit produces a warning of possible isolation, do not confirm the command. Cancel the command.

To manually busy the LIM unit that associates with the F-bus that you are working on, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LIM unit (0 or 1)

	If the command	Do
	passed	step 19
	requested confirmation	step 17

17 To cancel the command type

>NO

and press the Enter key.

18 Choose a different F-bus to work on.

	If you have	Do
	tested both F-buses	step 30
	not tested both F-buses	step 14

19 To reset the LIM unit, type

>PMRESET UNIT unit_no

and press the Enter key.

where

PM LIMF critical (continued)

unit_no
is the number of the LIM unit (0 or 1)

	If the PMRESET command	Do
	passed	step 26
	failed and the system generates a card list	step 20
	failed and the system does not generate a card list	step 21
20	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record the listed cards at these steps.	
21	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the LOADPM command	Do
	passed	step 26
	failed and the system generates a card list	step 22
	failed and the system does not generate a card list	step 30
22	Record the location, description, slot number, product engineering code (PEC), and PE suffix of the cards on the list. Note: If the system generates a card list at any previous step, make sure you record the listed cards at these steps.	
23	Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.	
24	To test the manual busy F-bus, type >TST FBUS fbus_no and press the Enter key. <i>where</i>	

PM LIMF
critical (continued)

fbus_no is the number of the F-bus (0 or 1)	
If the TST command	Do
passed	step 26
failed, and you did not replace all the cards on the list	step 25
failed, and you replaced all the cards on the list	step 30
25	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point. Go to step 24.
26	To return the LIM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)
If the RTS command	Do
passed, and the associated F-bus is manual busy	step 27
passed, and the associated F-bus is in service	step 28
failed	step 30
27	To return the F-bus to service, type >RTS FBUS fbus_no and press the Enter key. <i>where</i> fbus_no is the number of the F-bus (0 or 1)
If the RTS command	Do
passed	step 28
failed	step 30

**PM LIMF
critical (end)**

- 28** Determine the state of the mate F-bus.

If the mate F-bus is	Do
SysB	step 29
SysB (RU)	step 16
SysB (NA)	step 16
ManB	step 14
InSv	step 31
other than listed here	step 30

- 29** To manually busy the system busy F-bus, type

>BSY FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

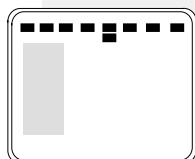
Go to step 14.

- 30** For additional help, contact the next level of support.

- 31** The procedure is complete.

PM LIMF major

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LIMF	.	.	.	.	.
				M					

Indication

At the MTC level of the MAP display, LIMF appears under the PM header of the alarm banner. The LIMF indicates an F-bus major alarm for a link interface module (LIM).

Meaning

A LIMF major alarm indicates one of the following:

- one F-bus associated with a LIM is system busy and the other F-bus is in service. All taps on the system busy F-bus are busy.
- one F-bus associated with a LIM is in service and the other is in service trouble due to problems with the composite clock.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

Result

The alarm does not affect service.

Common procedures

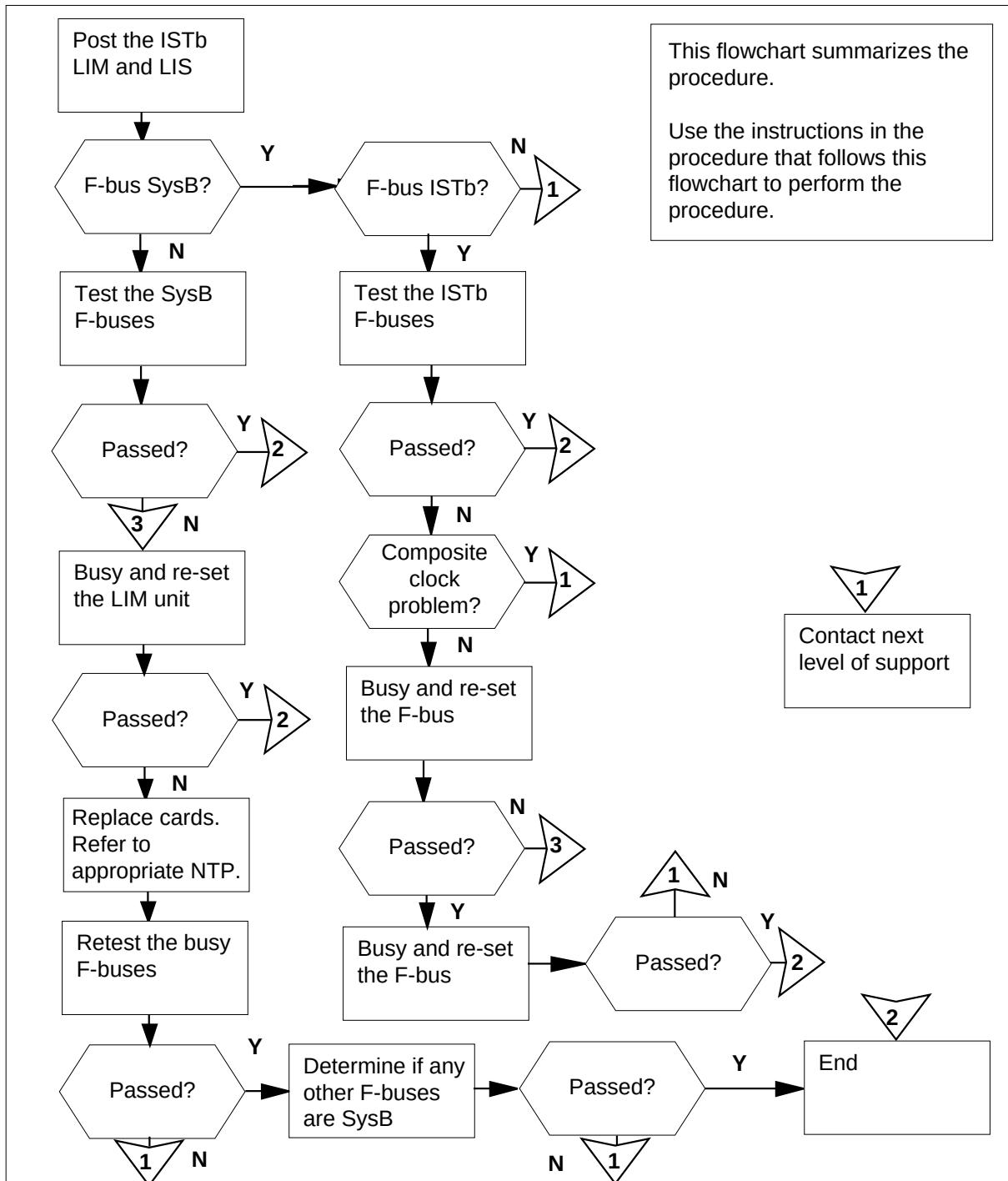
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LIMF major (continued)

Summary of clearing a PM LIMF major alarm



PM LIMF
major (continued)

Clearing a PM LIMF major alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.
Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	1	0	0	0	39

- 2 To display all in-service trouble LIMs, type
>DISP STATE ISTB LIM
and press the Enter key.
- 3 To post the first in-service trouble LIM, type
>POST LIM lim_no
and press the Enter key.
where

lim_no
is the number of the LIM (0 to 16)

Example of a MAP display for LPPs:

LIM 1 ISTb		Links_00S	Taps_00S
Unit0: ISTb	0	0	
Unit1: InSv	0	0	

- 4 To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.
Example of a MAP display:

LIM 1 ISTb		Links_00S	Taps_00S						
Unit0: ISTb	.	.	19						
Unit1: InSv	.	.	2						
Tap:	0	4	8	12	16	20	24	28	32
FBus0: ManB	BBBB	BBBB	BBBB	BBBB	----	----	----	---B	BB--
FBus1: InSv	...M	.I..	.S..		----	----	----	---	..--

PM LIMF major (continued)

Note: In the example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 5 Determine the state of the F-buses.

If either F-bus	Do
is SysB	step 7
is SysB (RU)	step 12
is SysB (NA)	step 12
is ManB	step 8
is ISTb	step 6

- 6 To test the in-service F-bus, type

>TST FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

If the TST command	Do
passed	step 23
failed, and indicates a problem with the DS-0 clock signal	step 22
failed with any other response	step 7

- 7 To manually busy the F-bus, type

>BSY FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the system busy F-bus (0 or 1)

Go to step 9.

- 8 Determine from office records or from operating company personnel why the F-bus is manually busy.

When you have permission, continue this procedure to return the F-bus to service.

PM LIMF major (continued)

- 9 To test the manually-busy F-bus, type

>TST FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

If the TST command	Do
passed	step 21
failed, and the system generated a card list	step 10
failed, and the system did not generate a card list	step 12

- 10 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

If the processor is an	Do
LPP	step 12
ELPP	step 5

- 11 To busy the F-bus associated with the unit you are working on, type

>BSY FBUS fbus_no

and press the Enter key.

where

- 12



CAUTION

Possible loss of service

Make sure that the mate LIM unit is in service before you busy this LIM unit. If you busy an LIM unit when the other LIM unit has faults, a loss of service occurs.

To manually busy the LIM unit for the F-bus, type

>BSY UNIT unit_no

and press the Enter key.

where

PM LIMF major (continued)

unit_no is the number of the LIM unit (0 or 1)	
If the command	Do
passed	step 13
failed	step 22
requests confirmation	step 22
13	To reset the LIM unit, type >PMRESET UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)
If the PMRESET command	Do
passed	step 20
failed, and the system generated a card list	step 14
failed, and the system did not generate a card list	step 15
14	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generated a card list in another step, make sure you record all cards listed in all steps.
15	To load the LIM unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)
If the LOADPM command	Do
passed	step 20
failed, and the system generated a card list	step 16

PM LIMF major (continued)

	If the LOADPM command	Do
	failed, and the system did not generate a card list	step 22
16	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Note: If the system generated a card list in another step, make sure that you record all cards listed in all steps.	
17	Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
18	To test the manually-busy F-bus, type >TST FBUS fbus_no and press the Enter key. <i>where</i> fbus_no is the number of the F-bus (0 or 1)	
	If the TST command	Do
	passed	step 20
	failed, and you did not replace all the cards on the list	step 19
	failed, and you replaced all the cards on the list	step 22
19	Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. Go to step 18.	
20	To return the LIM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the RTS command	Do
	passed	step 21
	failed, and the system did not generate a card list	step 22

**PM LIMF
major (end)**

- 21** To return the F-bus to service, type

>RTS FBUS fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

If the RTS command	Do

passed	step 23

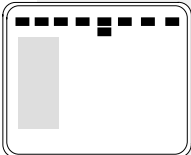
failed	step 22

- 22** For additional help, contact the next level of support.

- 23** The procedure is complete.

PM LIMREX
minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	LIMREX	.	.	.	.	.

Indication

At the MTC level of the MAP display, LIMREX appears under the PM header of the alarm banner. The LIMREX indicates that an LIM unit executes a routine exercise (REx) test.

Meaning

One unit of a LIM executes an REx test. The mate LIM unit is in service. The mate unit provides messaging and other LIM functions for all application specific units (ASU) in the link peripheral processor (LPP). The LIMREX alarm disappears when the LIM REx tests are complete.

Result

Service is not affected.

Common procedures

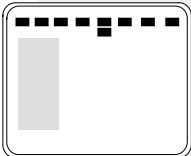
There are no common procedures.

Action

There is no action required.

PM LIU7 critical

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LIU7	.	.	.	.	.
				C					

Indication

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a critical alarm for a CCS7 link interface unit (LIU7).

Meaning

A minimum of one LIU7 is system busy or system busy not accessible.

Result

Out of service LIU7s cause signaling links that associate with the LIU7s to be out of service.

The number under the PM header in the alarm banner indicates the number of LIU7s affected.

Common procedures

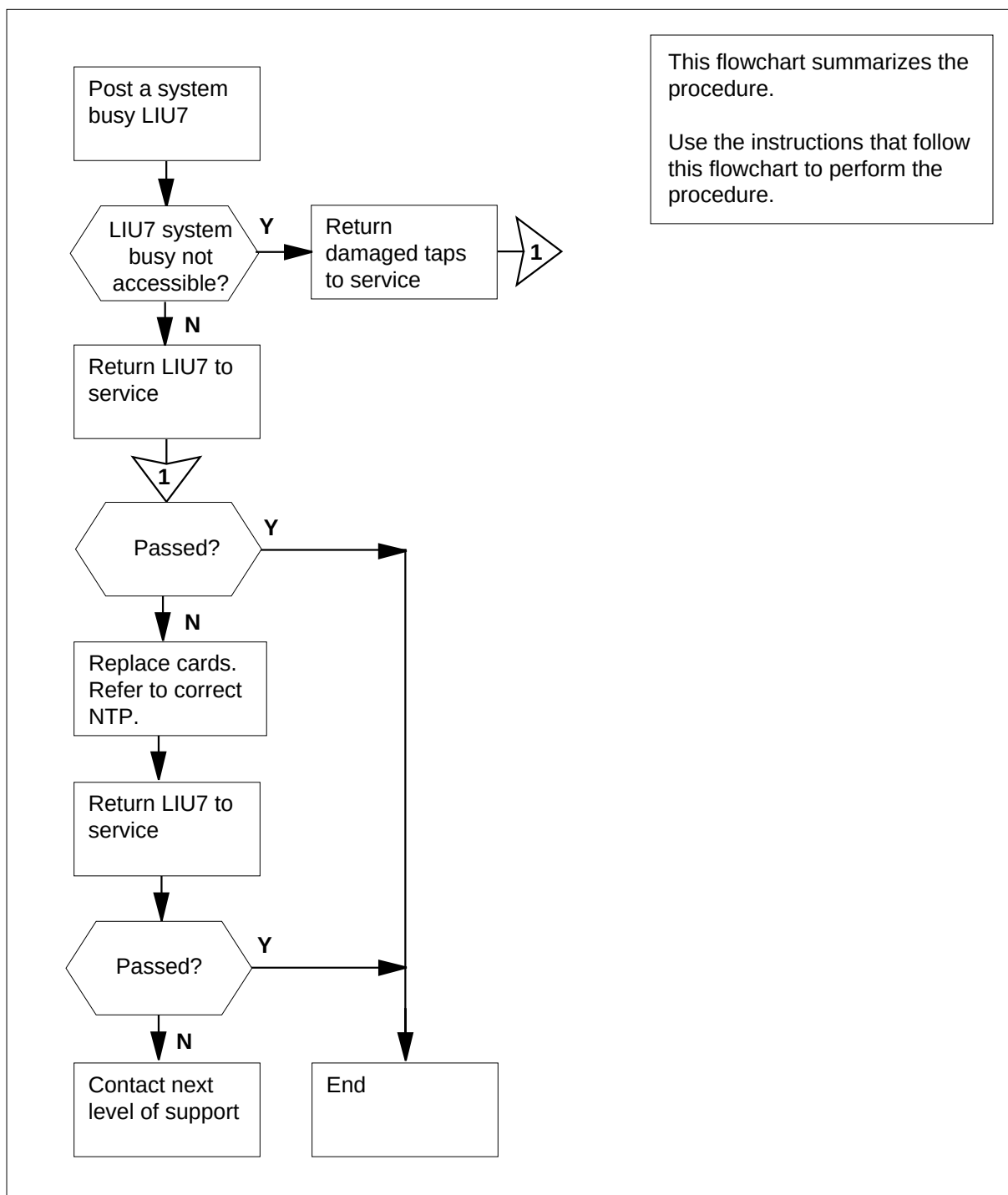
This procedure refers to *Activating CCS7 links*.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIU7 critical (continued)

Summary of clearing a PM LIU7 critical alarm



PM LIU7 critical (continued)

Clearing a PM LIU7 critical alarm

At the MAP terminal

1



WARNING

Possible action that affects service

Do not POST, RTS, and LOAD multiple sets of LIU7s.
Finish work on one set of LIU7s before you work on another set.

The system automatically attempts to reload the system busy LIU7s and return the LIU7s to service. Monitor PM181 logs to determine if the system performed three autorecovery attempts.

Note: After three failed autorecovery attempts, a forced autoloading pending maintenance flag appears for the posted LIU7. When the system is in a forced autoloading pending state, five minutes pass before another autorecovery attempt occurs.

If PM181 logs		Do
indicate an LIU7 failed three autorecovery attempts and is in a forced autoloading pending state		step 4
indicate the system busy LIU7s performed a correct automatic recovery		step 66
2 Determine if all the MS alarms cleared.		
If all the MS alarms		Do
did clear		step 10
did not clear		step 3
3 Perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point.		
4 Determine if the LIU7 critical alarm cleared.		
If the LIU7 alarm		Do
did clear		step 66
did not clear		step 5

PM LIU7
critical (continued)

- 5 To access table SUSHELF, type
>TABLE SUSHELF
and press the Enter key.
- 6 To list the contents of the table, type
>LIST ALL
and press the Enter key.

Example of a MAP response:

TOP											
SHELFKEY		FLOOR		ROW		FRAMPOS		FRAMETYP		FRAMENUM	
						SHELFPOS		SHELFPEC		CARDINFO	

MS	NIL	15	0	1	1	A	1	EMC		1	
0 NT9X72CA											
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) \$											
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) \$											
MS	NIL	15	2	1	1	A	1	EMC		1	
0 NT9X72CA											
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) \$											
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) \$											

- 7 Record the frame type information.
Note: The frame type appears under the FRAMETYP header of the MAP display. The example in step 6 indicates that the frame type is EMC.
- 8 Determine the frame type recorded in step 7.

If the frame type	Do
is LIM	step 9
is SC or EMC	step 65

- 9 To quit from table SUSHELF, type
>QUIT
and press the Enter key.
- 10 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.
- 11 To display all system busy LIU7s, type
>DISP STATE SYSB LIU7
and press the Enter key.

PM LIU7 critical (continued)

- 12** To post the first system busy LIU7 on the list, type
>POST LIU7 liu_no
 and press the Enter key.
where
 liu_no
 is the number of the selected LIU7 (0 to 511)
- 13** Determine the state of the posted LIU7.
- | If the state of the posted LIU7 | Do |
|---------------------------------|---------|
| is SysB (NA) | step 14 |
| is SysB | step 48 |
- 14** Determine if an FSP alarm under the EXT header of the MAP display is present.
- | If an FSP alarm | Do |
|-----------------|---------|
| is present | step 15 |
| is not present | step 16 |
- 15** Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.
 Go to step 50.
- 16** To determine if a condition that affects service for an NIU is present, type
>QUERYPM
 and press the Enter key.
- Note:** In the following example, conditions that affect service appear under the heading Potential service affecting conditions .
- Example of a MAP response:*

PM LIU7

critical (continued)

PM type:LIU PM No.:110 Status: SysB(NA)
 LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
 Default Load: LCC36BX
 Running Load: LCC36BX
 Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
 NIU Unit 1 is not inservice
 CBUS PORT for NIU Unit 1 is not inservice
 LMS States: InSv InSv
 Auditing : No No
 Msg Channels: NA NA
 TAP 2 : S(NA) M(NA)
 Reserved LIU7 forms part of CCS7 Linkset: LSCAP1
 SLC: 5 LIU is allocated

If an NIU condition that affects service	Do

is present	step 17
is not present	step 18

- 17** Perform the correct NIU alarm procedure in this document to clear the alarm. Complete the procedure and return to this point.
 Go to step 64.

- 18** Determine the number of the link interface module (LIM) that associates with the LIU7.

Note: The number of the LIM that associates with the LIU7 appears in the second line of the MAP response.

- 19** To post the LIM that associates with the LIU7, type

>POST LIM lim_no

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

Example of a MAP display:

```
LIM 1 ISTb
Unit0: ISTb      Links_00S Taps_00S
Unit1: ManB      2          .
                  2          18
```


PM LIU7 critical (continued)

- 20 Determine the state of the LIM.

If the LIM	Do
is InSv or ISTb	step 23
is other than listed here	step 21

- 21 A problem with the LIM produces a PM LIM alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 22 Determine if the LIU7 alarm cleared.

If the LIU7 alarm	Do
cleared	step 66
did not clear	step 23

- 23 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```
LIM 1 ISTb
Unit0:  ISTb
Unit1:  InSv
Tap:    0   4   8  12  16   20  24  28  32
FBus0:  ManB  BBBB BBBB BBBB BBBB ----  ----  ----  ---B BB--
FBus1:  InSv   ...M .I.. .S.. .... ----  ----  ----  ---. ...
```

Note: In the previous example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual-busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

- 24 Determine the state of the F-buses.

If the F-buses	Do
are both InSv or ISTb	step 27
are both other than listed here	step 25

- 25 A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

PM LIU7
critical (continued)

- 26 Determine if the LIU7 alarm cleared.

If the LIU7 alarm	Do
cleared	step 66
did not clear	step 27

- 27 To determine the F-bus taps that associate with the LIU7, type
>TRNSL fbus_no
and press the Enter key.
where

fbus_no
is the number of either F-bus (0 or 1)

Example of a MAP response:

```
LIM 1  FBus    0 Tap  0  is on LIU7 101
LIM 1  FBus    0 Tap  1  is unequipped
LIM 1  FBus    0 Tap  2  is on LIU7 110
LIM 1  FBus    0 Tap  3  is on LIU7 104
```

- 28 The system generated a MAP display in step 23. Use this MAP display to determine the state of the F-bus taps that associate with the system busy LIU7.

Note: The tap number shown in the MAP response in step 27 applies to both F-buses.

If the state of	Do
either F-bus tap fluctuates from I to S, or is S	step 34
either F-bus tap is M	step 29
both taps are in service	step 65

- 29 Determine from office records or from operating company personnel why the removal of the tap from service occurred. When you have permission, continue the procedure to return the tap to service.

- 30 To return the F-bus tap to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.
where

fbus_no
is the number of the F-bus (0 or 1)

PM LIU7 critical (continued)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

	If the RTS command	Do
	passed, and the other tap is M	step 28
	passed, and the other tap is in service	step 31
	failed	step 65
31	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
32	To post the system busy LIU7, type >POST LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the LIU7 (0 to 511)	
33	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 58
	failed	step 65
34	To manually busy the tap on F-bus 0, type >BSY FBUS 0 tap_no and press the Enter key. <i>where</i> tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)	
	If the BSY command	Do
	passed	step 36
	failed	step 35

PM LIU7
critical (continued)

- 35

To force the F-bus tap to busy, type

>BSY FBUS 0 tap_no FORCE

and press the Enter key.

where

tap_no
is the number of the tap (0 to 23 or 0 to 35)
- 36

To manually busy the tap on F-bus 1, type

>BSY FBUS 1 tap_no

and press the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 23 or 0 to 35)
If the BSY command	Do
passed	step 38
failed	step 37
- 37

To force the F-bus tap to busy, type

>BSY FBUS 1 tap_no FORCE

and press the Enter key.

where

tap_no
is the number of the tap (0 or 23 or 0 to 35)
- 38

To access table LIUINV to determine if the system busy LIU7 is a two-slot or a three-slot LIU, type

>TABLE LIUINV

and press the Enter key.

MAP response:

TABLE: LIUINV
- 39

To display the tuple in table LIUINV for the system busy LIU7, type

>POSITION LIU7 liu_no

and press the Enter key.

where

liu_no
is the number of the LIU7 (0 to 511)

Example of a MAP response:

PM LIU7 critical (continued)

LIU7 101 LIM 0 1 8 LCC36CH NT9X13CA NT9X75AA
NT9X76AA NT9X78AA FBUS

Note: The tuple in table LIUINV contains the card number NTEX22 if the LIU7 is a two-slot LIU. The tuple contains the card number NT9X13 if the LIU7 is a three-slot LIU.

	If the tuple	Do
	contains NTEX22	step 40
	contains NT9X13	step 42
40	Replace the NTEX22 card. To replace the card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
41	Go to step 43.	
42	Replace the NT9X13 card. To replace the card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
43	To return the tap on F-bus 0 to service, type >RTS FBUS 0 tap_no and press the Enter key. where tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)	
	If the RTS command	Do
	passed	step 44
	failed	step 65
44	To return the tap on F-bus 1 to service, type >RTS FBUS 1 tap_no and press the Enter key. where tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)	
	If the RTS command	Do
	passed	step 50
	failed	step 65

PM LIU7

critical (continued)

- 45** To reset the LIU7, type
>PMRESET
and press the Enter key.

If the PMRESET command	Do
passed	step 57
failed	step 50

- 46** To manually busy the LIU7, type
>BSY
and press the Enter key.

If the response	Do
is LIU7 liu_no BSY Passed	step 50
is Busying LIU7 liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 47
is other than listed here (apart from "failed"), including additional messages with the above response	step 65
is LIU7 liu_no BSY Failed	step 48

- 47** To confirm the command, type
>YES
and press the Enter key.
Go to step 50

- 48** To force the LIU7 to busy, type
>BSY FORCE
and press the Enter key.

If the response	Do
is LIU7 liu_no BSY Passed	step 50

PM LIU7 critical (continued)

	If the response	Do
	is Busyng LIU7 liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 49
	is other than listed here, including additional messages with the above response	step 65
49	To confirm the command, type >YES and press the Enter key. Go to step 50	
50	To load the LIU7, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 57
	failed	step 51
51	To test the LIU7, type >TST and press the Enter key.	
	If the TST command	Do
	passed	step 57
	fails, and the system generates a card list that contains cards that are not changed	step 52
	is other than listed here	step 65
52	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the first card on the list.	
53	To replace the card, perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.	

PM LIU7
critical (continued)

- 54** To load the LIU7, type
>LOADPM
and press the Enter key.
- | If the LOADPM command | Do |
|------------------------------|---------|
| passed | step 55 |
| failed | step 65 |
- 55** To test the LIU7, type
>TST
and press the Enter key.
- | If the TST command | Do |
|---|---------|
| passed | step 57 |
| fails, and you did not replace more cards on the list | step 56 |
| is other than listed here | step 65 |
- 56** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the next card on the list.
Go to step 53.
- 57** To return the LIU7 to service, type
>RTS
and press the Enter key.
- | If the RTS command | Do |
|---------------------------|---------|
| passed | step 58 |
| failed | step 65 |
- 58** To access the C7LKSET level of the MAP display to determine that the CCS7 link on the LIU7 is in service, type
>CCS;CCS7;C7LKSET
and press the Enter key.
- 59** To post the linkset that associates with the LIU7, type
>POST C linkset_name
and press the Enter key.
where

PM LIU7

critical (continued)

linkset_name
is the linkset name

Example of a MAP display:

```
Linkset TR000002    InSv
  Traf  Sync
LK Stat  Stat  Resource  Stat Physical Access
1 InSv  Sync    LIU7 8    InSv  DS0A
2 InSv  Sync    LIU7 7    InSv  DS0A
```

- 60** Determine the traffic state of the CCS7 link for the LIU7 in use.

Note: The number of the LIU7 in use appears under the Resource header on the MAP display. The traffic state of the CCS7 link appears under the Traf Stat header.

If the state of the CCS7 link	Do
is InSv	step 66
is other than listed here	step 61

- 61** Wait eight minutes to see if the CCS7 link terminated on the LIU7 establishes again.

If the state of the link	Do
is InSv	step 66
is other than listed here	step 62

- 62** Perform the procedure *Activating CCS7 links* in this document. Complete the procedure and return to this point.

- 63** Determine if the link activated.

If the link activation	Do
passed	step 64
failed	step 65

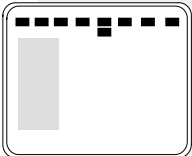
- 64** Determine if the LIU7 alarm cleared.

If the alarm	Do
cleared	step 66
decreased in number (for example, changed from 2LIU7 to 1LIU7)	step 10

PM LIU7
critical (end)

	If the alarm	Do
	did not clear	step 65
65	For additional help, contact the next level of support.	
66	The procedure is complete.	

PM LIU7
major

Alarm display

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LIU7	.	.	.	.
				M				

Indication

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a major alarm for a CCS7 link interface unit (LIU7).

Meaning

A minimum of one LIU7 is manual busy or manual busy not accessible.

The number under the PM header of the alarm banner indicates the number of LIU7s affected.

Result

The indicated number of LIU7s that are out of service cause signaling links that associate with the LIU7s to be out of service.

Common procedures

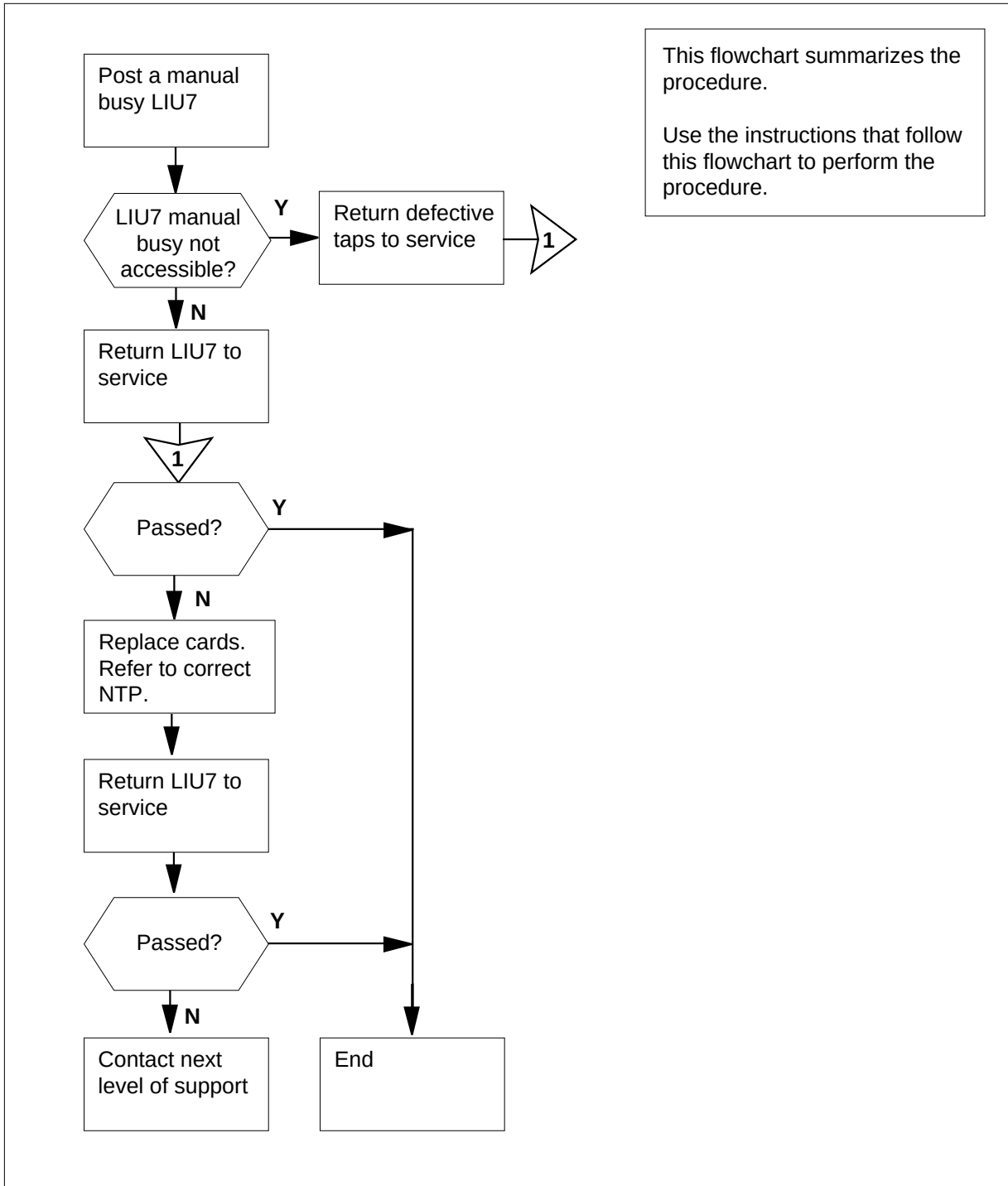
This procedure refers to *Activating CCS7 links*.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIU7 major (continued)

Summary of clearing a PM LIU7 major alarm



PM LIU7 major (continued)

Clearing a PM LIU7 major alarm



WARNING

Possible service-affecting action

Do not POST, RTS and LOAD multiple sets of LIU7s. Finish work on one set of LIU7s before you work on another set.

At the MAP terminal

- 1 Determine from office records or from operating company personnel why the LIU7 is manual busy. When you have permission, continue this procedure.

- 2 Determine if all the MS alarms cleared.

If all the MS alarms	Do
cleared	step 10
did not clear	step 3

- 3 To clear the alarm, perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 4 Determine if the LIU7 major alarm cleared.

If the LIU7 alarm	Do
cleared	step 61
did not clear	step 5

- 5 To access table SUSHELF, type

>TABLE SUSHELF

and press the Enter key.

- 6 To list the contents of the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

PM LIU7 major (continued)

```

TOP
SHELFKEY FLOOR ROW FRAMPOS FRAMETYP FRAMENUM
SHELFPOS SHELFPEC CARDINFO
-----
MS NIL 15 0 1 1 A 1 EMC 1
0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

MS NIL 15 2 1 1 A 1 EMC 1
0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

```

- 7 Record the frame type information.

Note: In the previous example, find the frame type under the FRAMETYP header in the MAP display. The example in step 6 indicates the frame type is EMC.

- 8 Determine the frame type recorded in step 7.

If the frame type	Do
is LIM	step 9
is SCC or EMC	step 60

- 9 To quit from table SUSHELF, type

>QUIT

and press the Enter key.

- 10 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

- 11 To display all manual busy LIU7s, type

>DISP STATE MANB LIU7

and press the Enter key.

- 12 To post the first manual busy LIU7 on the list, type

>POST LIU7 liu_no

and press the Enter key.

where

liu_no

is the number of the selected LIU7 (0 to 511)

PM LIU7
major (continued)

- 13** Determine the state of the posted LIU7.
- | If the state of the posted LIU7 | Do |
|--|-----------|
| is ManB (NA) | step 14 |
| is ManB | step 44 |
- 14** Determine if an FSP alarm is present under the EXT header of the MAP display.
- | If an FSP alarm | Do |
|------------------------|-----------|
| is present | step 15 |
| is not present | step 16 |
- 15** To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point.
Go to step 45.
- 16** To determine if a condition that affects service for an NIU is present, type **>QUERYPM** and press the Enter key.
- Note:** In the following example, conditions that affect service appear under the header Potential service affecting conditions.
- Example of a MAP response:*

PM LIU7**major** (continued)

```

PM type:LIU PM No.:110  Status: SysB(NA)
LIM: 1  Shelf:2  Slot: 12  LIU FTA:4249 1000
Default Load: LCC36BX
Running Load: LCC36BX
Potential service affecting conditions:
    Msg Channel #0 NA
    Msg Channel #1 NA
    TAP #0 OOS/NA
    TAP #1 OOS/NA
NIU Unit 1 is not inservice
CBUS PORT for NIU Unit 1 is not inservice
LMS States:      InSv      InSv
Auditing :       No        No
Msg Channels:    NA        NA
TAP 2 :          S(NA)    M(NA)
Reserved LIU7 forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated

```

If an NIU condition that affects service	Do

is present	step 17
is not present	step 18

- 17** To clear the alarm, perform the correct NIU procedure in this document. Complete the procedure and return to this point.
Go to step 59.
- 18** Determine the number of the link interface module (LIM) that associates with the LIU7.

Note: The number of the LIM that associates with the LIU7 appears in the second line of the MAP response.
- 19** To post the LIM that associates with the LIU7, type
>POST LIM lim_no
and press the Enter key.
where
lim_no
is the number of the LIM (0 to 16)
Example of a MAP display:

```

LIM  1  ISTb
                                Links_OOS  Taps_OOS
Unit0: ISTb                      2          .
Unit1: ManB                      2          18

```


PM LIU7 major (continued)

- 20 Determine the state of the LIM.

If the LIM	Do
is Insv or ISTb	step 23
is other than listed here	step 21

- 21 A problem with the LIM produces a PM LIM alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point

- 22 Determine the state of the posted LIU7.

If the state of the posted LIU7	Do
is ManB (NA)	step 23
is ManB	step 44

- 23 To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

Example of a MAP display:

```

LIM 1 ISTb
Unit0:  ISTb          Links_00S  Taps_00S
Unit1:  InSv          .           19
Tap:    0   4   8   12  16  20  24  28  32
FBus0:  ManB         BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1:  InSv         ...M .I... .S... .... ---- ---- ---- ---. ...-

```

Note: In the example, B under a tap number indicates that the F-bus is manual busy. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 24 Determine the state of the F-buses.

If both F-buses	Do
are InSv or ISTb	step 27
are other than listed here	step 25

- 25 A problem with the F-bus produces a PM LIMF alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point.

PM LIU7

major (continued)

- 26 Determine the state of the posted LIU7.

If the state of the posted LIU7	Do
is ManB (NA)	step 27
is ManB	step 44

- 27 To determine the F-bus taps that associate with the LIU7, type
>TRNSL fbus_no
 and press the Enter key.
 where

fbus_no
 is the number of either F-bus (0 or 1)

Example of a MAP response:

```
LIM 1   FBus   0 Tap   0   is on LIU7 101
LIM 1   FBus   0 Tap   1   is unequipped
LIM 1   FBus   0 Tap   2   is on LIU7 110
LIM 1   FBus   0 Tap   3   is on LIU7 104
```

- 28 The system generated a MAP display in step 23. Use this display to determine the state of the F-bus taps that associate with the system-busy LIU7.

Note: The tap number that appears in the MAP response in step 27 applies to both F-buses.

If the state of either F-bus tap	Do
fluctuates from I to S or is S	step 34
is M	step 29
is I	step 60

- 29 Determine from office records or from operating company personnel what caused the tap to be out of service. When you have permission, continue this procedure to return the tap to service.

- 30 To return the F-bus tap to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no
 is the number of the F-bus (0 or 1)

PM LIU7 major (continued)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

	If the RTS command	Do
	passed, and the other tap is M	step 28
	passed, and the other tap is in service	step 52
	failed	step 60
31	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
32	To post the LIU7, type >POST LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the selected LIU7 (0 to 511)	
33	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 53
	failed	step 60
34	To manually busy the tap on F-bus 0, type >BSY FBUS 0 tap_no and press the Enter key. <i>where</i> tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)	
	If the BSY command	Do
	passed	step 36
	failed	step 35

PM LIU7
major (continued)

- 35

To force the F-bus tap to busy, type

>BSY FBUS 0 tap_no FORCE

and press the Enter key.

where

tap_no
is the number of the tap (0 or 23 or 0 to 35)
- 36

To manually busy the tap on F-bus 1, type

>BSY FBUS 1 tap_no

and press the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 23 or 0 to 35)
If the BSY command	Do
passed	step 38
failed	step 37
- 37

To force the F-bus tap to busy, type

>BSY FBUS 1 tap_no FORCE

and press the Enter key.

where

tap_no
is the number of the tap (0 or 23 or 0 to 35)
- 38

To access table LIUINV to determine if the system busy LIU7 is a two-slot LIU or a three-slot LIU, type

>TABLE LIUINV

and press the Enter key.

MAP response:

TABLE: LIUINV
- 39

To display the tuple in table LIUINV for the system busy LIU7, type

>POSITION LIU7 liu_no

and press the Enter key.

where

liu_no
is the number of the LIU7 (0 to 511)

Example of a MAP response:

PM LIU7 major (continued)

LIU7 101 LIM 0 1 8 LCC36CH NT9X13CA NT9X75AA
NT9X76AA NT9X78AA FBUS

Note: The tuple in table LIUINV contains the card number NTEX22.

- 40** Replace the NTEX22 card. To clear the alarm, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 41** To return the tap on F-bus 0 to service, type

>RTS FBUS 0 tap_no

and press the Enter key.

where

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command	Do
passed	step 42
failed	step 60

- 42** To return the tap on F-bus 1 to service, type

>RTS FBUS 1 tap_no

and press the Enter key.

where

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command	Do
passed	step 45
failed	step 60

- 43** To post the manual busy LIU7, type

>POST LIU7 liu_no

and press the Enter key.

where

liu_no

is the number of the selected LIU7 (0 to 511)

- 44** To reset the LIU7, type

>PMRESET

PM LIU7

major (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 52
failed	step 45

- 45** To load the LIU7, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 52
failed	step 46

- 46** To test the LIU7, type
>TST
and press the Enter key.

If the TST command	Do
passed	step 52
failed, and the system generates a card list that contains cards that you did not change	step 47
is other than listed here	step 60

- 47** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the first card on the list.

- 48** To replace the card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 49** To load the LIU7, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 50
failed	step 60

- 50** To test the LIU7, type
>TST

PM LIU7 major (continued)

and press the Enter key.

If the TST command	Do
passed	step 52
failed, and more cards on the list that are not replaced are present	step 51
is other than listed here	step 60

- 51** Record the location, description, slot number, product engineering code (PEC), and PEC suffix, of the next card on the list.

Go to step 48.

- 52** To return the LIU7 to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 53
failed	step 60

- 53** To access the C7LKSET level of the MAP display to determine that the CCS7 link on the LIU7 is in service, type

>CCS;CCS7;C7LKSET

and press the Enter key.

- 54** To post the linkset that associates with the LIU7

>POST C linkset_name

and press the Enter key.

where

linkset_name
is the linkset name

Example of a MAP display:

```
Linkset TR000002    InSv
  Traf   Sync
LK Stat  Stat  Resource  Stat Physical Access
1  InSv   Sync   LIU7 8    InSv   DS0A
2  InSv   Sync   LIU7 7    InSv   DS0A
```

PM LIU7
major (end)

- 55** Determine the traffic state of the CCS7 link for the LIU7 you are working on.

Note: The number of the LIU7 appears under the Resource header on the MAP display. The traffic state of the CCS7 link appears under the Traf Stat header.

If the state of the CCS7 link	Do
is InSv	step 61
is other than listed here	step 56

- 56** Wait eight minutes to determine if the CCS7 link terminated on the LIU7 establishes again.

If the state of the link	Do
is InSv	step 61
is other than listed here	step 57

- 57** Perform the procedure *Activating CCS7 links* in this document. Complete the procedure and return to this point.

- 58** Determine if the link activated.

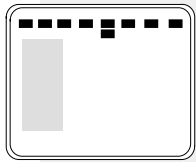
If the link activation	Do
passed	step 59
failed	step 60

- 59** Determine if the LIU7 alarm cleared.

If the alarm	Do
cleared	step 61
decreased in number (for example, changed from 2LIU7 to 1LIU7)	step 10
did not clear	step 60

- 60** For additional help, contact the next level of support.

- 61** The procedure is complete.

**PM LIU7
minor****Alarm display**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LIU7	.	.	.	.	.

Indication

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a minor alarm for a CCS7 link interface unit (LIU7).

Meaning

A minimum of one LIU7 has in-service trouble.

The number under the PM header of the alarm banner indicates the number of LIU7s affected.

Result

LIU7s with in-service trouble continue to function. Traffic is not affected on CCS7 links that connect to LIU7s with minor alarms.

Common procedures

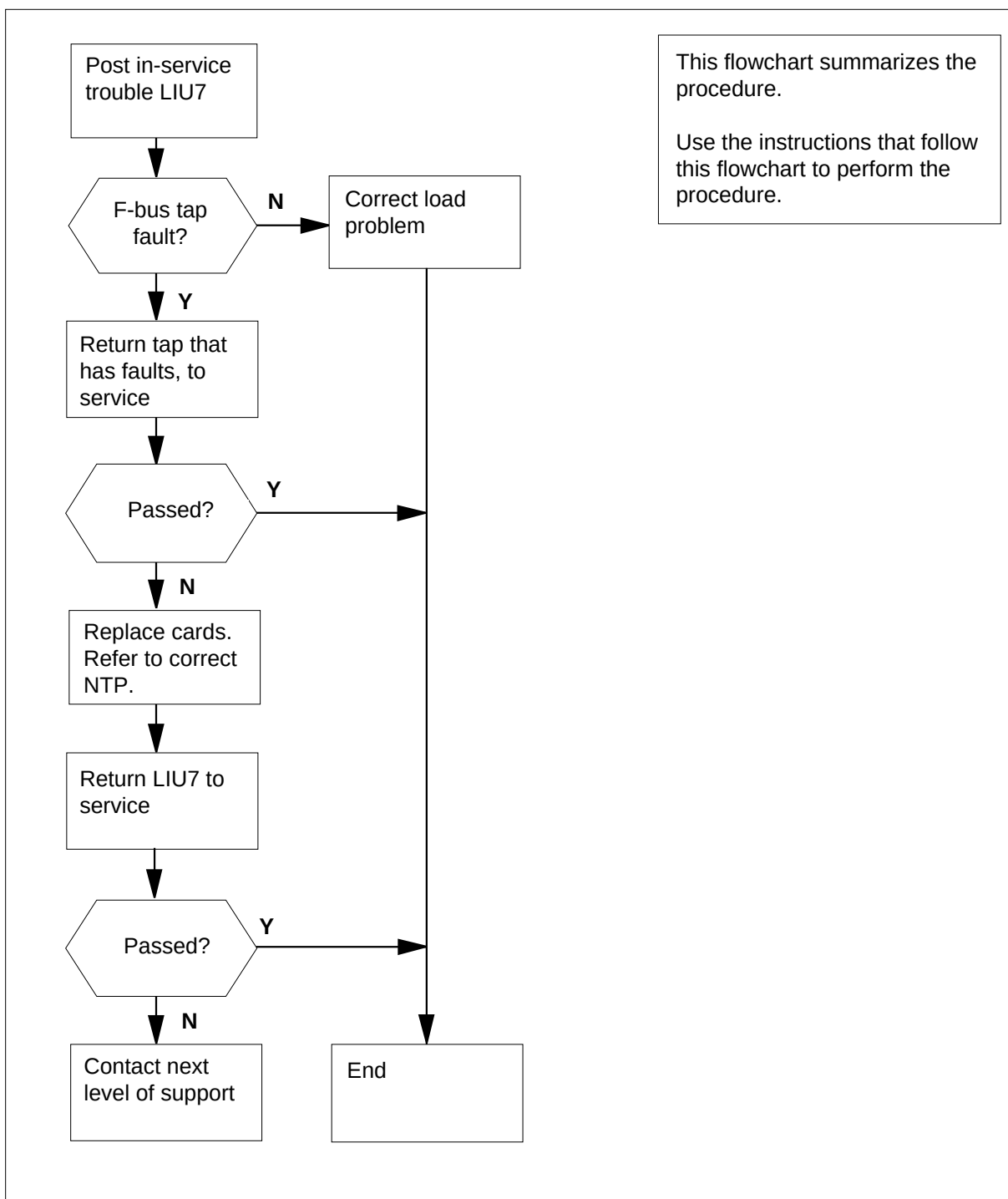
This procedure refers to *Activating CCS7 links*.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIU7 minor (continued)

Summary of clearing a PM LIU7 minor alarm



PM LIU7 minor (continued)

Clearing a PM LIU7 minor alarm



WARNING

Possible service-affecting action

The following procedure can require that you take an LIU7 out of service. If instructions require you to busy an LIU7, busy the LIU7 during a period of low traffic to prevent service interruption.



WARNING

Possible service-affecting action

Do not POST, RTS and LOAD multiple sets of LIU7s. Finish work on one set of LIU7s before you work on another set.

At the MAP terminal

- 1 Determine if all the MS alarms cleared.

If all the MS alarms	Do
cleared	step 9
did not clear	step 2

- 2 Perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 3 Determine if the LIU7 minor alarm cleared.

If the LIU7 minor alarm	Do
cleared	step 83
did not clear	step 4

- 4 To access table SUSHELF, type

>TABLE SUSHELF

and press the Enter key.

- 5 To list the contents of the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

PM LIU7

minor (continued)

TOP
 SHELFKEY FLOOR ROW FRAMPOS FRAMETYP FRAMENUM
 SHELFPOS SHELFPEC CARDINFO

```
-----
MS NIL 15 0 1 1 A 1 EMC 1
      0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

MS NIL 15 2 1 1 A 1 EMC 1
      0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $
```

- 6 Record the frame type information.

Note: Find the frame type under the FRAMETYP header in the MAP display. The example in step 5 indicates that the frame type is EMC.

- 7 Determine the frame type recorded in step 6.

If the frame type	Do
is LIM	step 8
is SSC or EMC	step 82

- 8 To quit from table SUSHELF, type

>QUIT

and press the Enter key.

- 9 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

- 10 To display all in-service trouble LIU7s, type

>DISP STATE ISTB LIU7

and press the Enter key.

- 11 To post the first in-service trouble LIU7 on the list, type

>POST LIU7 liu_no

and press the Enter key.

where

liu_no

is the number of the selected LIU7 (0 to 511)

- 12 To query the state of the LIU7, type

>QUERYPM

PM LIU7 minor (continued)

and press the Enter key.

Example of a MAP response:

```
PM type:LIU7      PM No.:110  Status:ISTb
LIM: 1  Shelf:2  Slot: 12  LIU FTA:4249 1000
Default Load: LCC36BX
Running Load: LCC36BX
ISTB conditions:
  Msg Channel #0 NA
  TAP #0 OOS/NA
LMS States: INSV      INSV
Auditing?: No Yes
Msg Channels:  NA Acc
TAPs:      M      .
Reserved LIU7 forms part of CCS7 Linkset: LSCAP1 SLC:
5 LIU is allocated
```

- 13** Record the following information from the response that the system generated in step 12.
- LIM number
 - default load name
 - running load name
 - ISTb conditions
 - CCS7 linkset name
- 14** Determine if an F-bus tap problem causes the in-service trouble condition.
- Note:** F-bus tap problems appear next to the TAP # header. The TAP # header appears under the ISTB conditions header of the MAP response. When a tap is out of service, the associated MSG channel is out of service, as displayed in the previous example.

If an F-bus tap	Do
is OOS/NA	step 16
is OOS	step 25
fault is not listed	step 15

- 15** Determine if a mismatch between the name of the default load and the running load is present.
- Note:** The names of the default and running loads appear in the third and fourth lines of the response. The system generates the response in step 12.

If a load name mismatch	Do
is present	step 54

PM LIU7 minor (continued)

	If a load name mismatch	Do
	is not present	step 82
16	Determine the number of the LIM that associates with the LIU7. Note: The number of the associated LIM appears in the second line of the response that the system generated in step 12.	
17	To post the LIM that associates with the in-service trouble LIU7, type >POST LIM lim_no and press the Enter key. where lim_no is the LIM number (0 to 16) <i>Example of a MAP display:</i>	
	<pre> LIM 1 ISTb Links_00S Taps_00S Unit0: ISTb 2 . Unit1: ManB 2 18 </pre>	
18	Determine the state of the LIM.	
	If the LIM	Do
	is InSv	step 21
	is other than listed here	step 19
19	A problem with the LIM produces a PM LIM alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point.	
20	Determine if the LIU7 alarm cleared.	
	If the alarm	Do
	cleared	step 83
	did not clear	step 21
21	To access the F-bus level of the MAP display, type >FBUS and press the Enter key. <i>Example of a MAP display:</i>	

PM LIU7 minor (continued)

```

LIM 1 Insv
Unit0: Insv
Unit1: Insv
Tap: 0 4 8 12 16 20 24 28 32
FBus0: Insv
FBus1: Insv
Links_00S
Taps_00S
BBBB ..S. ....
...M .I.. .S..

```

Note: In the previous example, B under a tap number indicates that the F-bus is manual busy. The letter B also can indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 22 Determine the state of the F-buses.

If both F-buses	Do
are InSv	step 25
are other than listed here	step 23

- 23 A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 24 Determine if the LIU7 alarm cleared.

If the alarm	Do
cleared	step 83
did not clear	step 25

- 25 To determine that the F-bus taps associated with the in-service trouble LIU7, type

>TRNSL fbus_no

and press the Enter key.

where

fbus_no

is the number of the F-bus that contains the out-of-service tap (determined in step 12)

Note: The number of the F-bus tap associates with the LIU7 you are working on. The number of the F-bus appears to the left of the LIU7 number on the MAP. In the following example, LIU7 110 associates with tap 2 on F-bus 0.

Example of a MAP response:

PM LIU7

minor (continued)

```
LIM 1   FBus    0 Tap    0   is on LIU7 101
LIM 1   FBus    0 Tap    1   is unequipped
LIM 1   FBus    0 Tap    2   is on LIU7 110
LIM 1   FBus    0 Tap    3   is on LIU7 104
```

- 26** From the MAP display that the system generated in step 21, determine the state of the F-bus taps. The F-bus taps associate with the in-service trouble LIU7.

Note: The tap number that appears in the MAP display applies to both F-buses.

If either tap	Do
is M	step 29
is S	step 27
is other than listed here	step 82

- 27** To manually busy the F-bus tap that associates with the in-service trouble LIU7, type

```
>BSY FBUS fbus_no tap_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the BSY command	Do
passed	step 30
failed	step 28

- 28** To force the F-bus tap to busy, type

```
>BSY FBUS fbus_no tap_no FORCE
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the tap (0 to 23 or 0 to 35)

Go to step 30.

PM LIU7 minor (continued)

29 Determine from office records or from operating company personnel why the F-bus tap is manual busy. When you have permission, continue this procedure to return the tap to service.

30 To return the F-bus tap that associates with the in-service trouble LIU7 to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command	Do
passed, and the other tap is not in service	step 31
passed, and the other tap is in service	step 81
failed, and the system generates a card list	step 32
is other than listed here	step 82

31 Determine the state of the other F-bus tap for the same LIU7.

If the state of the other F-bus tap	Do
is M	step 29
is S	step 27

32 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of all the cards on the list.

33 To access the C7LKSET level of the MAP display, type

>CCS;CCS7;C7LKSET

and press the Enter key.

34 To post the linkset that associates with the LIU7, type

>POST C linkset_name

and press the Enter key.

where

linkset_name

is the name of the linkset

PM LIU7

minor (continued)

Note: The name of the linkset that associates with the in-service trouble LIU7 appears in the second last line of the response. The system generated this response in step 12.

- 35** To inhibit the link that associates with the LIU7, type

>INH link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 15)

If the INH command	Do
passed	step 36
failed	step 82

- 36** To manually busy the link that associates with the LIU7, type

>BSY link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 7 or 0 to 15)

If the response	Do
is Link link_no:Traffic is running on that link Please confirm ("YES", "Y", "NO", or "N"):	step 37
is other than listed here, includ- ing additional messages with above response	step 82

- 37** To confirm the command, type

>YES

and press the Enter key

Go to step 38

- 38** To return to the PM level of the MAP display, type

>PM

and press the Enter key.

PM LIU7 minor (continued)

- 39 To post the LIU7, type
>POST LIU7 liu_no
 and press the Enter key.
 where
liu_no
 is the number of the LIU7 (0 to 511)

40

**WARNING****Risk of service interruption**

To perform the next step, remove an LIU7 from service.
 Manually busy the LIU7 during a period of low traffic to
 prevent service interruption.

To manually busy the LIU7, type

>BSY

and press the Enter key.

If the response	Do
is Busyng LIU7 liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 41
is other than listed here, including additional messages with above response	step 82

- 41 To confirm the command, type
>YES
 and press the Enter key
- 42 Replace the first card on the list recorded in step 32. To replace the card,
 perform the correct procedure in *Card Replacement Procedures*. Complete
 the procedure and return to this point.
- 43 To set the LIU7 again, type
>PMRESET

PM LIU7
minor (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 47
failed	step 44

- 44** To load the LIU7, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 47
failed, and you did not replace all the cards on the list recorded in step 32	step 45
is other than listed here	step 82

- 45** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 46** Go to step 43.

- 47** To post the LIM that associates with the LIU7, type
>POST LIM lim_no
and press the Enter key.
where

lim_no
is the number of the LIM (0 to 16)

- 48** To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.

- 49** To return the F-bus tap to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.
where

fbus_no
is the number of the F-bus (0 or 1)

PM LIU7 minor (continued)

	tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)								
	<table> <tr> <th>If the RTS command</th><th>Do</th></tr> <tr> <td>passed</td><td>step 50</td></tr> <tr> <td>failed</td><td>step 82</td></tr> </table>	If the RTS command	Do	passed	step 50	failed	step 82		
If the RTS command	Do								
passed	step 50								
failed	step 82								
50	Determine the state of the other F-bus tap that associates with the LIU7.								
	<table> <tr> <th>If the other F-bus tap</th><th>Do</th></tr> <tr> <td>is M</td><td>step 29</td></tr> <tr> <td>is S</td><td>step 27</td></tr> <tr> <td>is in service</td><td>step 51</td></tr> </table>	If the other F-bus tap	Do	is M	step 29	is S	step 27	is in service	step 51
If the other F-bus tap	Do								
is M	step 29								
is S	step 27								
is in service	step 51								
51	To quit from the F-bus level of the MAP display, type >QUIT								
	and press the Enter key.								
52	To post the LIU7, type >POST LIU7 liu_no								
	and press the Enter key.								
	where								
	liu_no is the number of the LIU7 (0 to 511)								
53	To return the LIU7 to service, type >RTS								
	and press the Enter key.								
	<table> <tr> <th>If the RTS command</th><th>Do</th></tr> <tr> <td>passed</td><td>step 74</td></tr> <tr> <td>failed</td><td>step 82</td></tr> </table>	If the RTS command	Do	passed	step 74	failed	step 82		
If the RTS command	Do								
passed	step 74								
failed	step 82								
54	Determine from office records or from operating company personnel the name of the load that runs in the switch.								
55	Determine if the default load name matches the correct load name determined in step 54.								
	<table> <tr> <th>If the default load name</th><th>Do</th></tr> <tr> <td>matches the correct load name</td><td>step 62</td></tr> </table>	If the default load name	Do	matches the correct load name	step 62				
If the default load name	Do								
matches the correct load name	step 62								

PM LIU7 minor (continued)

	If the default load name	Do
	does not match the correct load name	step 56
56	To access table LIUINV, type >TABLE LIUINV and press the Enter key.	
57	To position on the key value of the tuple to change, type >POSITION LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the in-service trouble LIU7 (0 to 511) <i>Example of a MAP response:</i>	
		LIU7 102 LIM 1 1 12 LRC36CV NTEX22BB NT9X76AA NT9X78AA FBUS
58	To specify the field in the tuple to change, type >CHANGE LOAD and press the Enter key.	
59	To enter the new value of the field that you want to change, type >new_value and press the Enter key. <i>where</i> new_value is the new value for the field <i>Example of a MAP response:</i>	
		TUPLE TO BE CHANGED: LIU7 102 LIM 1 1 12 LCC36BX NTEX22BB NT9X76AA NT9X78AA FBUS ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
60	To confirm the new value of the changed field, type >Y and press the Enter key. <i>MAP response:</i> TUPLE CHANGED	

PM LIU7 minor (continued)

- 61** To quit from the table, type
>QUIT
and press the Enter key.
- 62** Determine if the running load name matches the correct load name that you determined in step 54.
- | If the running load | Do |
|---------------------|---------|
| is correct | step 74 |
| is not correct | step 63 |
- 63** To access the C7LKSET level of the MAP display, type
>CCS;CCS7;C7LKSET
and press the Enter key.
- 64** To post the linkset that associates with the LIU7, type
>POST C linkset_name
and press the Enter key.
where
linkset_name
is the name of the linkset
- 65** To inhibit the link, type
>INH link_no
and press the Enter key.
where
link_no
is the number of the link (0 to 15)
- | If the INH command | Do |
|--------------------|---------|
| passed | step 66 |
| failed | step 82 |
- 66** To manually busy the link, type
>BSY link_no
and press the Enter key.
where

PM LIU7
minor (continued)

link_no
is the number of the link (0 to 7 or 0 to 15)

	If the response	Do
	is Link link_no:Traffic is running on that link Please confirm ("YES", "Y", "NO", or "N"):	step 67
	is other than listed here, including additional messages with above response	step 82
67	To confirm the command, type >YES and press the Enter key	
68	To return to the PM level of the MAP display, type >PM and press the Enter key.	
69	To post the in-service trouble LIU7, type >POST LIU7 liu_no and press the Enter key. where liu_no is the number of the LIU7 (0 to 511)	

70



WARNING
Risk of service interruption
If you perform the next step, you will take an LIU7 out of service. Manually busy the LIU7 during a period of low traffic to prevent service interruption.

To manually busy the LIU7, type
>BSY

PM LIU7 minor (continued)

and press the Enter key.

	If the response	Do
	is Busy'ing LIU7 liu_no will take a CCS7 resource out of ser- vice Please confirm ("YES", "Y", "NO", or "N"):	step 71
	is other than listed here, includ- ing additional messages with above response	step 82
71	To confirm the command, type >YES and press the Enter key.	
72	To load the LIU7, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 73
	is other than listed here	step 82
73	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 74
	failed	step 82
74	To access the C7LKSET level of the MAP display, type >CCS;CCS7;C7LKSET and press the Enter key.	
75	To post the linkset that associates with the LIU7, type >POST C linkset_name	

PM LIU7
minor (continued)

and press the Enter key.

where

linkset_name
is the linkset name

Example of a MAP display:

```
Linkset TR000002      InSv
  Traf  Sync
LK Stat  Stat  Resource  Stat Physical Access
1  InSv  Sync  LIU7 110   InSv  DS0A
2  InSv  Sync  LIU7 104   InSv  DS0A
```

- 76** Determine the traffic state of the CCS7 link that associates with the LIU7.

Note: The LIU7 numbers appear under the Resource header in the display in step 75. The traffic state of the CCS7 links appear under the Traf Stat header.

If the state of the CCS7 link	Do
is InSv	step 81
is ManB	step 77
is other than listed here	step 79

- 77** To return the link to service, type

>RTS link_no

and press the Enter key.

where

link_no
is the number of the link (0 to 7 or 0 to 15)

If the RTS command	Do
passed	step 78
passed	step 79
failed	step 82

- 78** To restore traffic to the link that associates with the LIU7, type

>UINH link_no

and press the Enter key.

where

PM LIU7
minor (end)

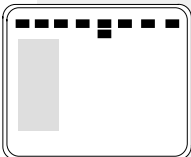
link_no

is the number of the link (0 to 15)

	If the UINH command	Do
	passed	step 81
	failed	step 82
79	Wait eight minutes to see if the CCS7 link terminated on the LIU7 establishes again.	
	If, after eight minutes, the link	Do
	is InSv	step 81
	is other than listed here	step 80
80	Perform the procedure <i>How to activate CCS7 links</i> in this document. Complete the procedure and return to this point.	
	If the link activation	Do
	passed	step 81
	failed	step 82
81	Determine if the LIU7 minor alarm cleared.	
	If the LIU7 minor alarm	Do
	cleared	step 83
	reduced in number (for example, changed from 4LIU7 to 3LIU7)	step 9
	did not clear	step 82
82	For additional help, contact the next level of support.	
83	The procedure is complete.	

PM LMDrwr major or minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LMDrwr	.	.	.		.
					M					

Indication

At the MTC level of the MAP display, LMDrwr (preceded by a number) appears under the PM header of the alarm banner. The LMDrwr indicates a major or minor fault for a line module drawer.

Meaning

The system generates a major (M) alarm when one or more drawers in an LM are system busy (SysB). The system also generates a major alarm when the LM is in-service trouble (ISTb).

The number that precedes LMDrwr is the number of LMs with a drawer fault.

Result

All lines in a system busy drawer are without service.

Common procedures

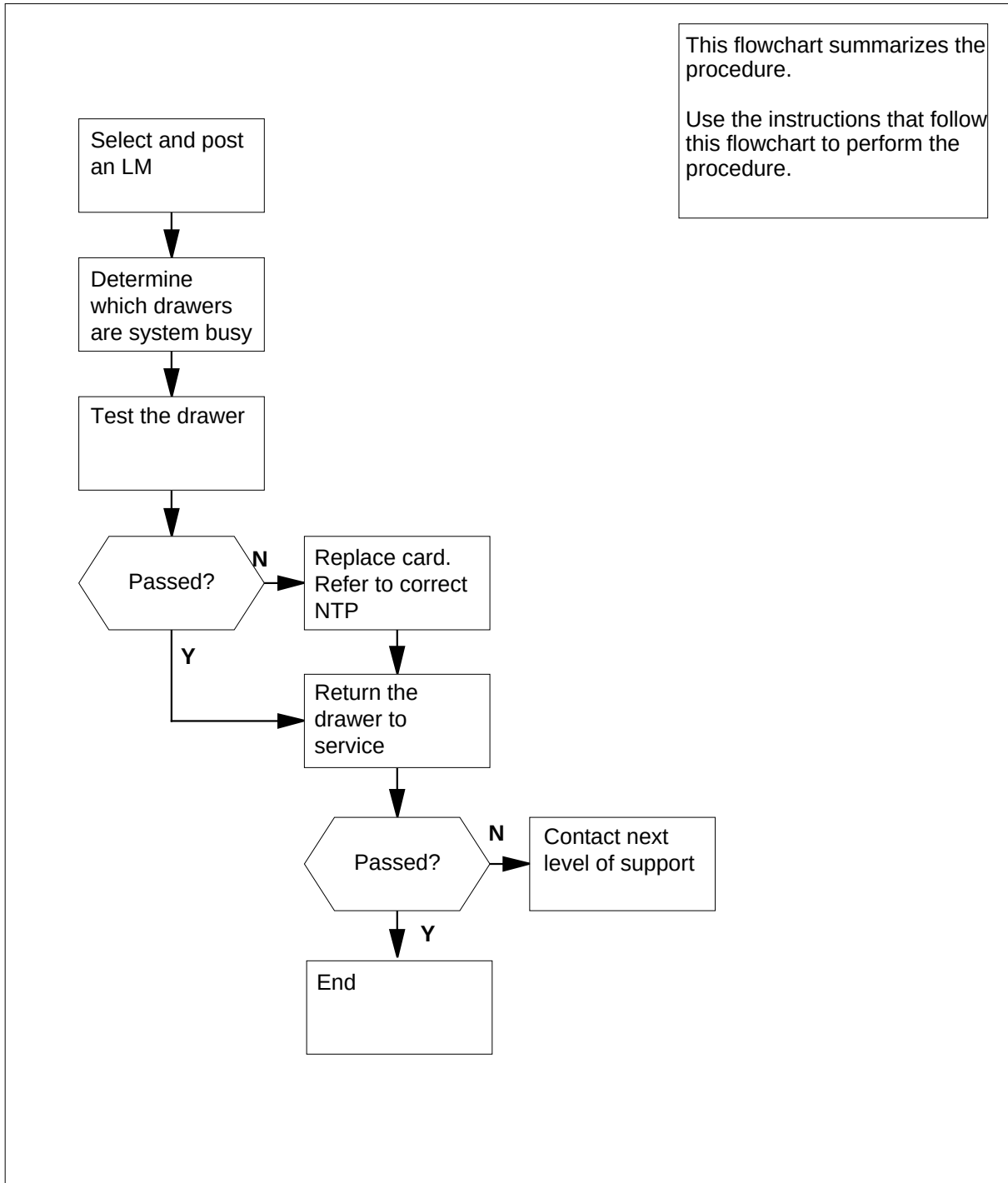
There are no common procedures.

Action

This procedure contains a summary flowchart of the procedure. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LMDrwr major or minor (continued)

Summary of clearing a PM LMDrwr major or minor alarm



PM LMDrwr
major or minor (continued)

Clearing a PM LMDrwr major or minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

- 2 Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm	Do
is present	step 3
is not present	step 4

- 3 Perform the correct alarm clearing procedure in this document.

- 4 Determine if an audible alarm rings.

If an alarm	Do
rings	step 5
does not ring	step 6

- 5 To silence the alarm, type
>SIL
and press the Enter key.

- 6 To display all the in-service trouble LMs, type
>DISP STATE ISTB LM
and press the Enter key.

Example of a MAP display response:

ISTb LM : HOST 01 0,HOST 01 1

- 7 Record the number of each in-service trouble LM.
8 Choose an in-service trouble LM on which to work.
9 To post the selected LM, type
>POST LM site frame_no bay_no

PM LMDrwr major or minor (continued)

and press the Enter key.

where

site

is the four character string that indicates the location of the LM

frame_no

is the number of the LM frame (0 to 511)

bay_no

is the number of the LM bay (0 or 1)

Example of a MAP display:

```
LM  HOST 01 1  ISTb
RGen : 0 Standby      1 Standby
```

- 10** To determine which drawers are system busy, type

>QUERYPM DRWR

and press the Enter key.

Example of a MAP display response:

```
Line drawer status:
Bay LM HOST 01 1  controlled via LM HOST 01 1  is inactive
status: .---- .---- .---- .----.
Bay LM HOST 01 1  controlled via LM HOST 01 0  is inactive
status: .---- .---- .---- .----.
Bay LM HOST 01 0  controlled via LM HOST 01 1  is inactive
status: .---- .---- .---- .----.
```

- 11** Record the number of each system busy drawer.

- 12** Choose a system busy drawer on which to work.

- 13** To test the drawer, type

>TST DRWR drwr_no

and press the Enter key.

where

drwr_no

is the number of the drawer (0 to 19)

If the TST command	Do
passes	step 16
fails, and the system generated a card list	step 14
fails, and the system did not generate a card list	step 19

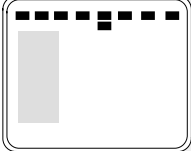
PM LMDrwr

major or minor (end)

- 14 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
 - 15 Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
 - 16 To return the drawer to service, type
>RTS DRWR drwr_no
and press the Enter key.
where
drwr_no
is the number of the drawer (0 to 19)
- | If the RTS command | Do |
|---|---------|
| passes, and the drawer is in service, but you recorded other system busy drawers in step 11 | step 13 |
| passes, and all drawers are in service | step 20 |
| fails, and you did not replace all cards in the list that you recorded in step 14 | step 17 |
| fails, and you replaced all cards in the list that you recorded in step 14 | step 19 |
- 17 Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
 - 18 Go to step 16.
 - 19 For additional help, contact the next level of support.
 - 20 The procedure is complete.

PM LMP critical

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LMP	.	.	.	.	.
					C					

Indication

At the MTC level of the MAP display, LMP (preceded by a number) appears under the PM header of the alarm banner. The LMP indicates a line module pair alarm. The number under the PM header in the alarm banner indicates the number of LMPs affected.

Meaning

The system generates a critical (*C*) alarm when an LM pair is system busy, C-side busy, or manually busy.

Result

Service stops when an LM pair is system busy, C-side busy, or manually busy.

Common procedures

The procedure refers to *Loading a PM*.

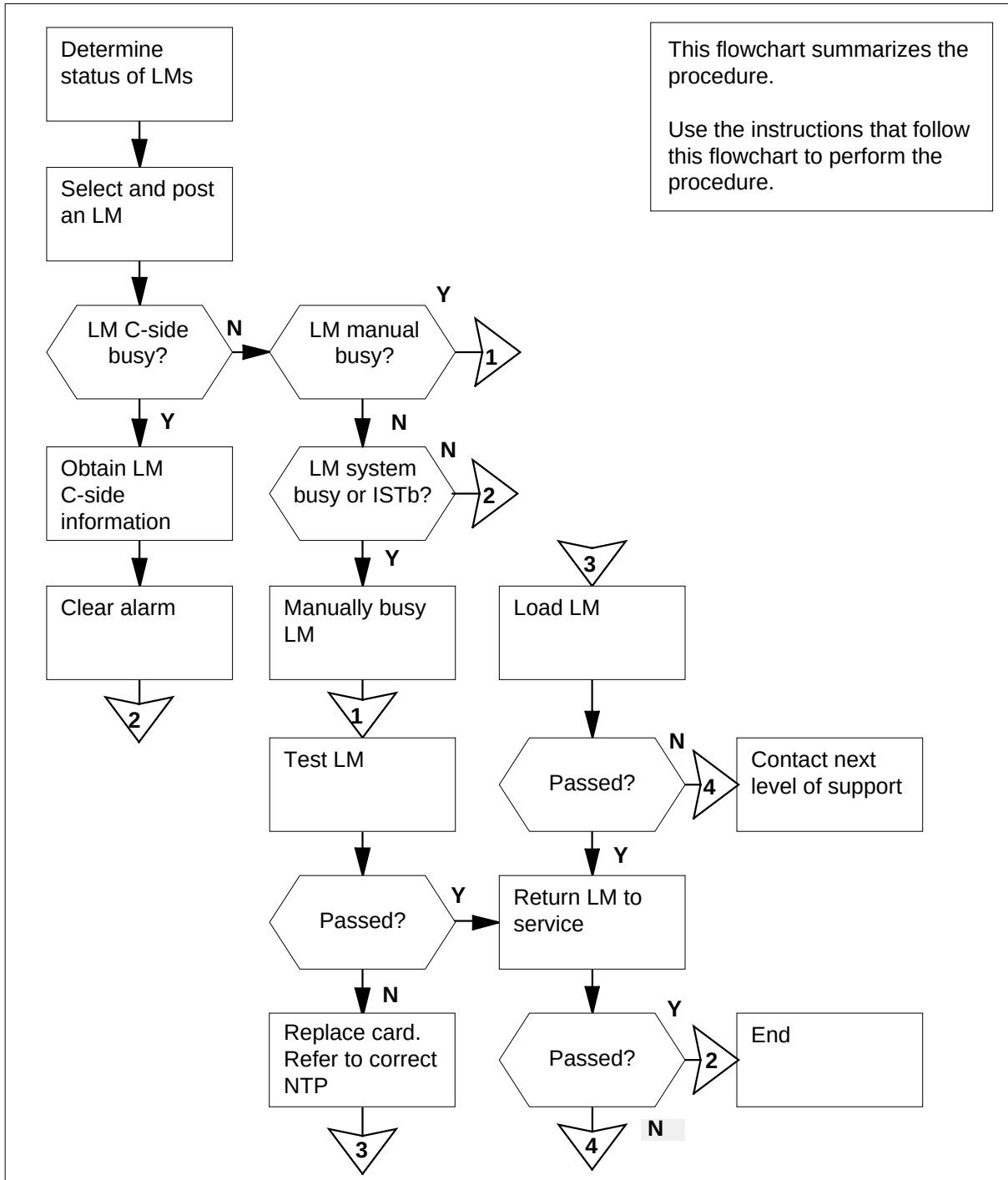
Do not go to the common procedure unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LMPr critical (continued)

Summary of clearing a PM LMPr critical alarm



PM LMPr
critical (continued)

Clearing a PM LMPr critical alarm**At the MAP display**

- 1** To access the PM level of the MAP display, type

>MAPCI ; MTC ; PM

and press the Enter key.

Example of a MAP display response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	15	0	0	1	3	5

- 2** Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm	Do

is present	step 3

is not present	step 4

- 3** Perform the correct alarm clearing procedure in this document.

- 4** Determine if an audible alarm rings.

If an alarm	Do

rings	step 5

does not ring	step 6

- 5** To silence the alarm, type

>SIL

and press the Enter key.

- 6** To display the status of all the PMs, type

>STATUS

and press the Enter key.

Example of a MAP display response:

TM8	2	0	0	0	0	1
MTM	7	0	0	0	0	4
STM	4	0	0	0	0	0
LM	2	0	0	0	3	0
LGC	0	0	0	1	0	0

PM LMP
critical (continued)

7	Determine the status of the LMs.								
	<table border="1"><thead><tr><th>If one of the LMs</th><th>Do</th></tr></thead><tbody><tr><td>is SysB</td><td>step 8</td></tr><tr><td>is CBsy</td><td>step 20</td></tr><tr><td>is ManB</td><td>step 27</td></tr></tbody></table>	If one of the LMs	Do	is SysB	step 8	is CBsy	step 20	is ManB	step 27
If one of the LMs	Do								
is SysB	step 8								
is CBsy	step 20								
is ManB	step 27								
8	To display all the system busy LMs, type >DISP STATE SYSB LM and press the Enter key. <i>Example of a MAP display response:</i> SysB LM : HOST 01 0,HOST 01 1								
9	Record the number of each system busy LM.								
10	Choose a system busy LM on which to work.								
11	To post the LM, type >POST LM site frame_no bay_no and press the Enter key. <i>where</i> site is the four-character string that indicates the location of the LM frame_no is the number of the frame (0 to 511) that contains the LM bay_no is the number of the LM bay (0 to 1) <i>Example of a MAP display response:</i> LM HOST 01 0 SysB NoTakeover RGen : 0 Standby 1 Standby								
12	To busy the LM, type >BSY and press the Enter key.								
13	To test the LM, type >TST and press the Enter key. <table border="1"><thead><tr><th>If the TST command</th><th>Do</th></tr></thead><tbody><tr><td>passes</td><td>step 14</td></tr></tbody></table>	If the TST command	Do	passes	step 14				
If the TST command	Do								
passes	step 14								

PM LMP critical (continued)

	If the TST command	Do
	fails, and the system generated a card list	step 15
	fails, and the system did not generate a card list	step 17
14	To return the LM to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passes, the LM is InSv, but you recorded other SysB LMs in step 9	step 11
	fails, and the MAP response is: Invalid firmware Load	PP step 17
	fails, and the system generated a card list	step 15
	fails, and the system did not generate a card list	step 17
15	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	
16	Perform correct procedure in <i>Card Replacement Procedures</i> to change the first card on the list. Complete the procedure and return to this point.	
17	To load the LM, type >LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passes	step 19
	fails	step 18
18	Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.	
19	To return the LM to service, type >RTS	

PM LMP_r critical (continued)

and press the Enter key.

If the RTS command	Do
passes, the LM is InSv, but you recorded other SysB LMs in step 9	step 11
passes, the LM is InSv, and no other LMs are SysB	step 41
fails and you did not replace all cards in the list that you recorded in step 15	step 11
fails and you replaced all cards in the list that you recorded in step 15	step 40

- 20 To display all the C-side busy LMs, type

>DISP STATE CBSY LM

and press the Enter key.

Example of a MAP display response:

SysB LM : HOST 02 0,HOST 02 1

- 21 Record the number of each C-side busy LM.

- 22 Choose a C-side busy LM on which to work.

- 23 To post the LM, type

>POST LM site frame_no pair_no

and press the Enter key.

where

site

is the four-character string that indicates the location of the LM

frame_no

is the number of the frame (0 to 511) that contains the LM

pair_no

is the number of the LM (0 to 1)

Example of a MAP display response:

LM HOST 02 0 CBsy NoTakeover

RGen : 0 Standby 1 Standby

- 24 The fault is present on the C-side of the LM.

To obtain the network, plane, and link numbers, type

>TRNSL

and press the Enter key.

Example of a MAP display response:

PM LMP
critical (continued)

```
LINK 0: NET 0 0 33;CAP:MS;STATUS:OK ,C,P;MsgCond:CLS
LINK 0: NET 1 0 33;CAP:MS;STATUS:OK ,C,P;MsgCond:CLS
LINK 1: NET 0 0 41;CAP: S;STATUS:OK ,C,P
LINK 1: NET 1 0 41;CAP: S;STATUS:OK ,C,P
```

- 25** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

- 26** To post the LM that was C-side busy, type
>PM;POST LM site frame_no bay_no
 and press the Enter key.

where

site

is the four-character string that indicates the location of the LM

frame_no

is the number of the frame (0 to 511) that contains the LM

pair_no

is the number of the LM (0 to 1)

If the LM	Do
is InSv, but you recorded other CBSy LMs in step 21	step 23
is InSv, and no other LMs are CBSy	step 41
remains CBSy	step 40

- 27** To display all the manual busy LMs, type
>DISP STATE MANB LM
 and press the Enter key.

Example of a MAP display response:

SysB LM : HOST 03 0,HOST 03 1

- 28** Record the number of each manual busy LM.

- 29** Choose a manual busy LM to work on.

- 30** To post the selected LM, type
>POST LM site frame_no bay_no
 and press the Enter key.

where

site

is the four-character string that indicates the location of the LM

frame_no

is the number of the frame (0 to 511) that contains the LM

PM LMP critical (continued)

pair_no
is the number of the LM (0 to 1)

Example of a MAP display response:

```
LM  HOST 03 0  ManB  NoTakeover
RGen : 0  Standby      1  Standby
```

31 Determine from office records or operating company office personnel why the LM is manual busy. Continue this procedure.

32 To return the LM to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passes, the LM is InSv, and no other LMs are ManB	step 41
passes, the LM is InSv, but you recorded other ManB LMs in step 28	step 30
fails, and the system generates a card list	step 33
fails, and the system does not generate a card list	step 35

33 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

34 Perform the correct procedure in *Card Replacement Procedures* to change the first card on the list. Complete the procedure and return to this point.

35 To load the LM, type

>LOADPM

and press the Enter key.

If the LOADPM command	Do
passes	step 37
fails	step 36

36 Perform the procedure "Loading a PM" in this document. Complete the procedure and return to this point.

37 To return the LM to service, type

>RTS

and press the Enter key.

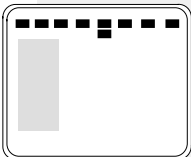
If the RTS command	Do
passes, the LM is InSv, and no other LMs are ManB	step 41

PM LMP
critical (end)

	If the RTS command	Do
	passes, the LM is InSv, but you recorded other ManB LMs in step 28	step 30
	fails, and you did not replace all cards in the list that you recorded in step 33	step 38
	fails, and you replaced all cards in the list that you recorded in step 33	step 40
38	Perform the correct procedure in <i>Card Replacement Procedures</i> to change the next card on the list. Complete the procedure and return to this point.	
39	Go to step 35.	
40	For additional help, contact the next level of support.	
41	The procedure is complete.	

PM LMRex
minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LMRex	.	.	.	.	.

Indication

At the MTC level of the MAP display, LMRex (preceded by a number) appears under the PM header of the alarm banner. The LMRex indicates a line module (LM) routine exercise (REx) test failure. The number that precedes the LMRex indicates the number of LMs that failed the REx test.

Meaning

The system generates a minor alarm when an LM fails a REx test. When an LM fails a REx test, the LM is in-service trouble (ISTb).

Result

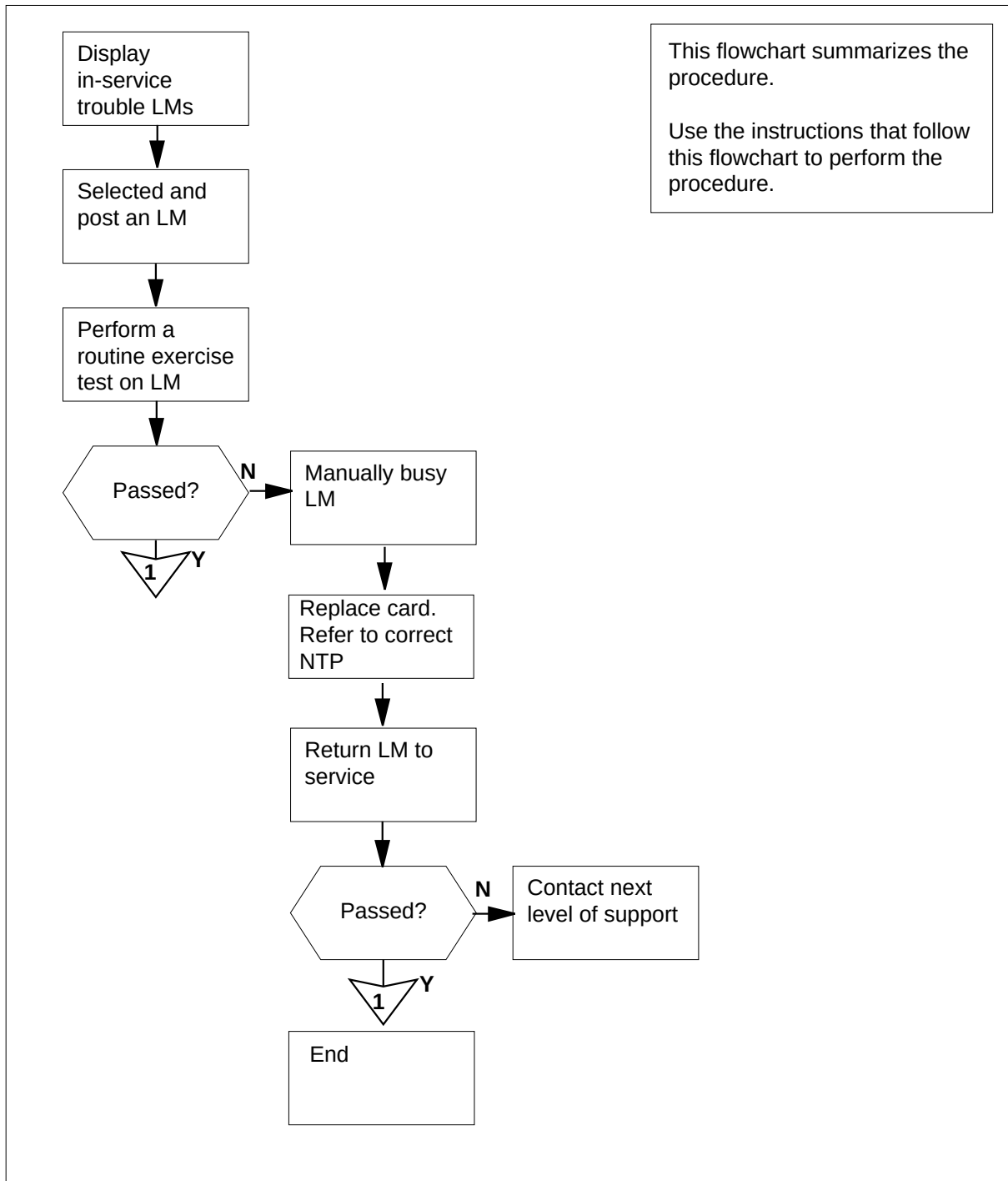
The alarm does not affect subscriber service when an LM is ISTb.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart of the procedure and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LMRex
minor** (continued)**Summary of clearing a PM LMRex minor alarm**

PM LMRex
minor (continued)

Clearing a PM LMRex minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press the Enter key.

Example of a MAP display response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	15	0	0	1	0	5

- 2 Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm	Do
is present	step 3
is not present	step 4

- 3 Perform the correct procedure in this document.

- 4 To display all the in-service trouble LMs, type
>DISP STATE ISTB LM
and press the Enter key.

Example of a MAP display response:
ISTb LM : HOST 01 0,HOST 01 1

- 5 Record the number of each in-service trouble LM.
6 Choose an in-service trouble LM on which to work.
7 To post the LM, type

>POST LM site frame_no bay_no
and press the Enter key.

where

site
is the four-character string that indicates the location of the LM
frame_no
is the number of the frame (0 to 511) that contains the LM
bay_no
is the number of the LM bay (0 or 1)

Example of a MAP display response:

**PM LMRex
minor (end)**

```
LM  HOST 01 0  ISTb  NoTakeover
RGen : 0 Standby    1 Standby
```

- 8** To run a routine exercise test on the LM, type
>TST LM REX
 and press the Enter key.

If the LM REX test	Do
passes, and the LM is InSv	step 14
fails, and the system generated a card list	step 9
fails, and the system did not generate a card list	step 13

- 9** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 10** To manually busy the LM, type
>BSY
 and press the Enter key.

- 11** Perform the correct procedure in *Card Replacement Procedures* to change the first card on the list. Complete the procedure and return to this point.

- 12** To return the LM to service, type
>RTS
 and press the Enter key.

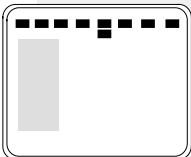
If the RTS command	Do
passes, and the LM is InSv	step 14
fails	step 13

- 13** For additional help, contact the next level of support.

- 14** The procedure is complete.

PM LMRGen major or minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LMRGen	.	.	.	.	
					M					

Indication

At the MTC level of the MAP display, LMRGen (preceded by a number) appears under the PM header of the alarm banner. The LMRGen indicates a fault with the line module (LM) ringing generator (RG). The number that precedes the LMRGen indicates the number of LMRGen faults.

Meaning

For a major alarm, an M appears under the alarm indicator. The system generates a major alarm when one of the two LM ringing generators is system busy.

For a minor alarm, information does not appear under the alarm indicator. The system generates a minor alarm when one of the two LMRGs is manually busy or in service trouble (ISTb).

Result

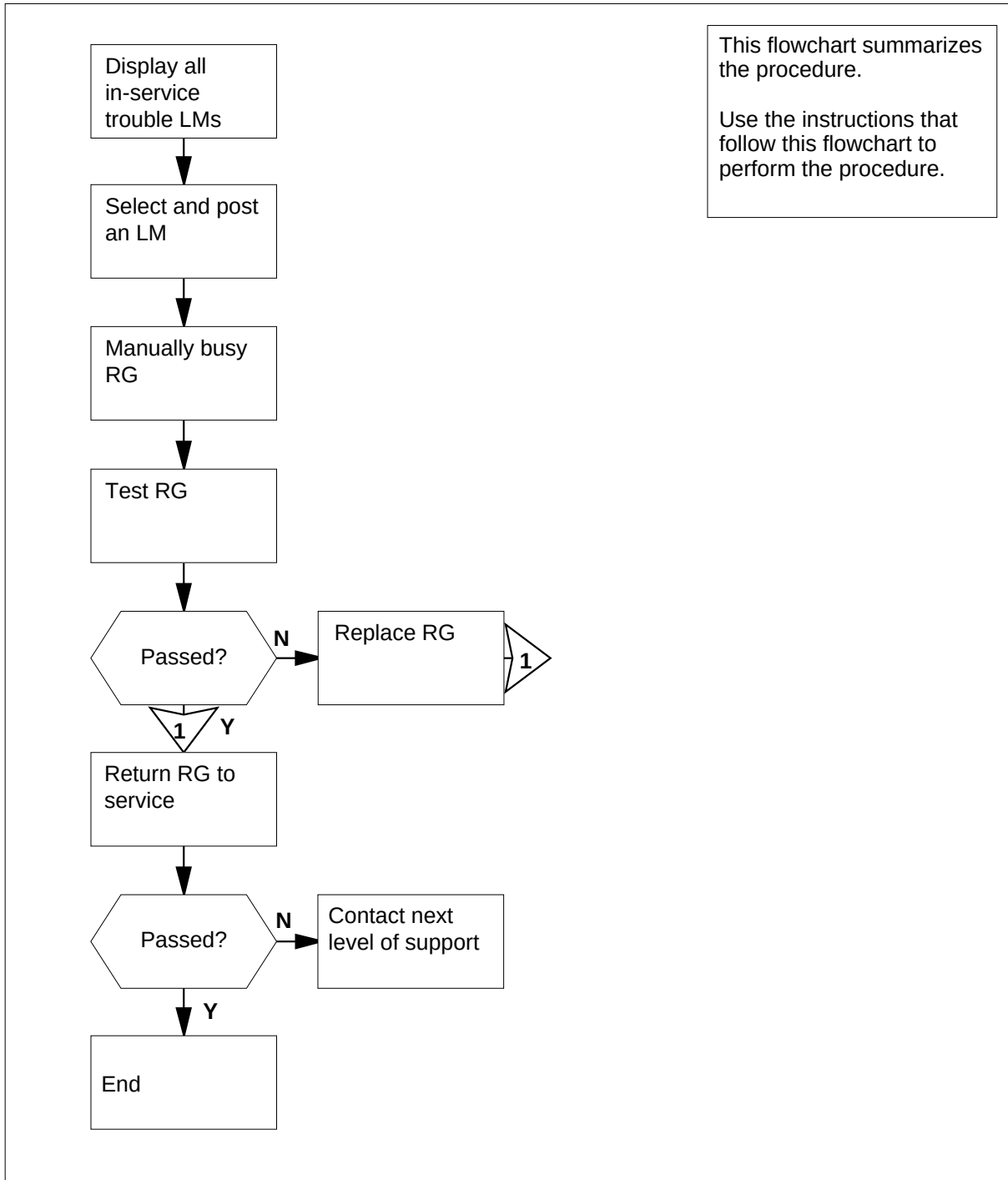
A system busy or manually-busy RG causes the loss of calls on this RG. When the other RG is in service, this RG takes over the load of the system busy or manually-busy RG.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LMRGen
major or minor** (continued)**Summary of clearing a PM LMRGen major or minor alarm**

PM LMRGen

major or minor (continued)

Clearing a PM LMRGen major or minor alarm

At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP display response:

SysB	ManB	OffL	CBsy	ISTb	InSv	
PM	15	0	0	1	3	5

- 2 Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm is	Do
present	step 3
not present	step 4

- 3 Perform the correct procedure in this document.

- 4 To display all the in-service trouble LMs, type

>DISP STATE ISTB LM

and press the Enter key.

Example of a MAP display response:

ISTb LM : HOST 01 0,HOST 01 1

- 5 Record the number of each in-service-trouble LM.

- 6 Choose an in-service-trouble LM on which to work.

- 7 To post the LM, type

>POST LM site frame_no bay_no

and press the Enter key.

where

site

is the four-character string that indicates the location of the LM

frame_no

is the number of the LM frame (0 to 511)

bay_no

is the number of the LM bay (0 or 1)

Example of a MAP display response:

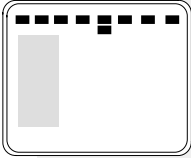
PM LMRGen major or minor (end)

```
LM  HOST 01 0  SysB  NoTakeover
RGen : 0 Standby    1 Standby
```

	If an RG	Do
	is SysB or ISTb	step 8
	is ManB	step 11
8	To busy the RG, type >BSY RGI rgi_no and press the Enter key. <i>where</i> rgi_no is the number of the RG (0 or 1)	
9	To test the RG, type >TST RGI and press the Enter key.	
	If the TST command	Do
	passes	step 11
	fails	step 10
10	Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the RG (NT2X05). Complete the procedure and return to this point.	
11	To return the ringing generator to service, type >RTS RGI rgi_no and press the Enter key. <i>where</i> rgi_no is the number of the RG (0 or 1)	
	If the RTS command	Do
	passes, and both RGs are InSv	step 13
	fails	step 12
12	For additional help, contact the next level of support.	
13	The procedure is complete.	

PM LTC critical

Alarm display

	CM	MS	IOD	Net	PM 1LTC *C*	CCS	Lns	Trks	Ext
	.	.	.	.		.	.	.	.

Indication

At the MTC level of the MAP display, LTC (preceded by a number and followed by a *C*) appears under the PM header of the alarm banner. The LTC indicates a critical alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC critical alarm.

Meaning

The LTC is system busy (SysB) or C-side busy (CBsy). An LTC is C-side busy if both units are C-side busy.

An LTC is system busy under one of the following conditions:

- both LTC units are system busy
- one unit is system busy and the other unit is manually busy (ManB)

Result

Service stops when an LTC is system busy or C-side busy.

Common procedures

This procedure refers to the following common procedures:

- "Clearing PM C-side faults"
- "Monitoring system maintenance"

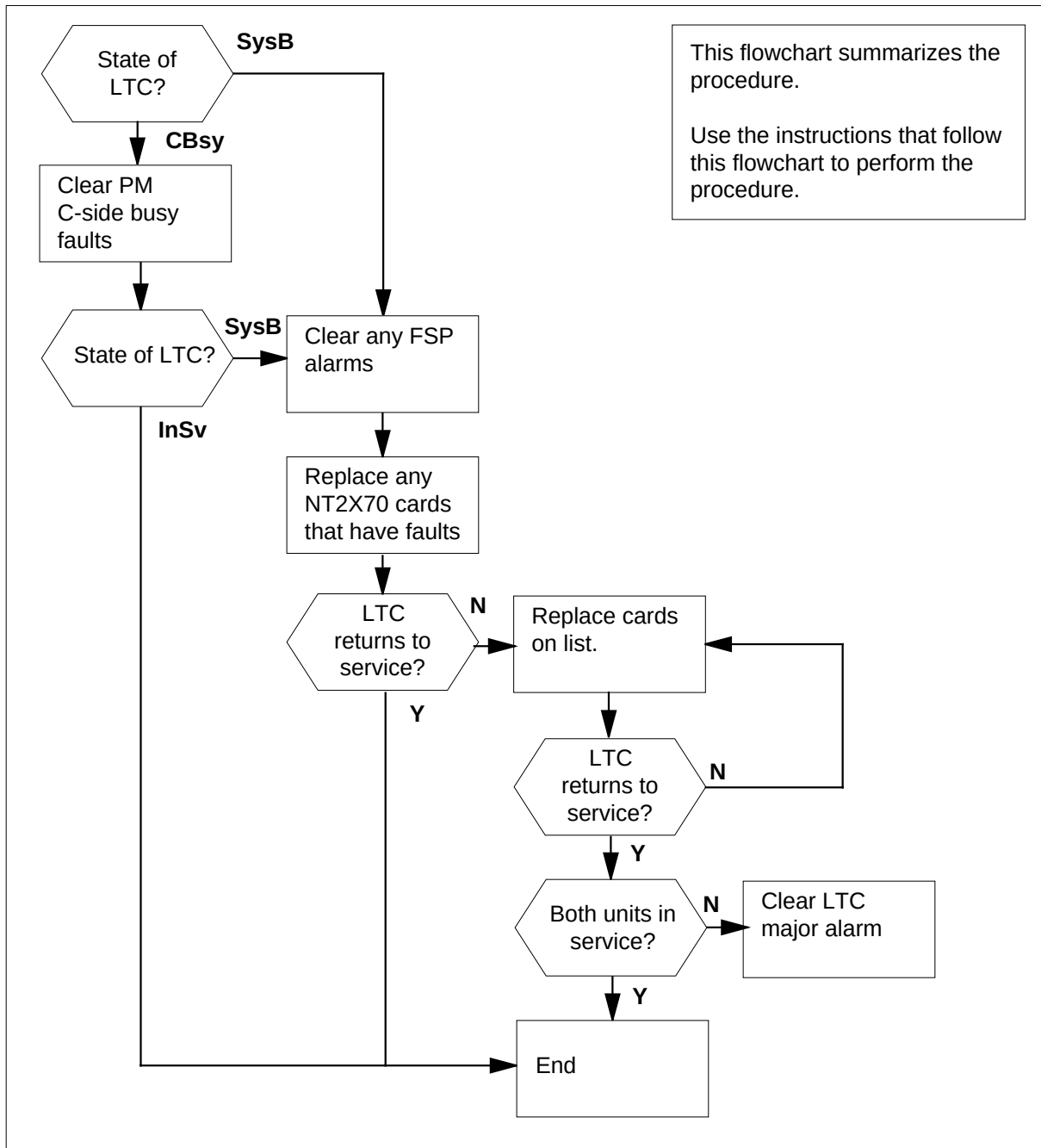
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This section provides a summary flowchart and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LTC critical (continued)

Summary of clearing a PM LTC critical alarm



PM LTC**critical** (continued)**LTC shelf design**

Paddle boards		Cards	
25R		NT2X70 Power converter card	25F
24R		NT0X50 Filler faceplate	24F
23R		NT0X50 Filler faceplate	23F
22R		NT6X40 DS30 C-side interface card	22F
21R		NT6X41 Speech bus formatter card	21F
20R	NTMX71 XPM+ terminator PB	NT6X42 CSM card	20F
19R		NT0X50 Filler faceplate	19F
18R		NT6X69 Message protocol card	18F
17R		NT6X92 Universal tone receiver card	17F
16R		NTBX01 ISDN signaling preprocessor	16F
15R		NT6X92 Universal tone receiver card	15F
14R		NT6X44 Time switch card, or NTAX78 Time switch card (Note 1)	14F
13R		NT0X50 Filler faceplate	13F
12R		NTMX77 Unified processor	12F
12R		NTSX05 SX05 processor (Note 2)	12F
11R		NT0X50 Filler faceplate	11F
10R		NT0X50 Filler faceplate	10F
09R		NT0X50 Filler faceplate	09F
08R		NT0X50 Filler faceplate	08F
07R		NT0X50 Filler faceplate	07F
06R		NT6X48 DS30A Interface card	06F
05R		NT6X48 DS30A Interface card	05F
04R		NT6X50 DS-1 Interface card	04F
03R		NT6X50 DS-1 Interface card	03F
02R		NT6X50 DS-1 Interface card	02F
01R		NT6X50 DS-1 Interface card	01F

← Rear
Front →

Note 1: The NTAX78BA Enhanced Time Switch card (shown in 14F) supports twice the number of P-side ports as the NT6X44 card (40 ports instead of 20 ports)

Note 2: Beginning with NA011/XPM11, the NTSX05AA processor is supported in the LTC and LTCI with a QLI load.

PM LTC critical (continued)

Clearing a PM LTC critical alarm

At the MAP display

- 1** To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12
If				Do		
an audible alarm rings				step 2		
no audible alarm rings				step 3		

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To determine if system busy or C-side busy LTCs cause the critical alarm, type

>STATUS

and press the Enter key.

Example of a MAP response:

PM	SysB 2	ManB 0	OffL 0	CBsy 2	ISTb 0	InSv 25
TM8	0	0	0	0	0	2
MTM	0	0	0	0	0	3
LGC	1	0	0	0	0	3
LCM	0	0	0	2	0	0
LTC	1	0	0	0	0	1
LIM	0	0	0	0	0	1
LIU7	0	0	0	0	0	1
FRIU	0	0	0	0	0	1
DTC	0	0	0	0	0	1
LCME	0	0	0	0	0	1
MORE . . .						

Note: If LTCs are both SysB and CBsy, work on the SysB LTCs first.

PM LTC
critical (continued)

- 4 To display all the CBsy or SysB LTCs, type

>DISP STATE state LTC

and press the Enter key.

where

state

is CBsy or SysB, as recorded in step 3

Example of a MAP response:

SysB LTC : 0

Note: If multiple LTCs are CBsy or SysB, select an LTC on which to work.
Record the number of the LTC.

If you	Do
recover a CBsy LTC	step 5
recover a SysB LTC	step 6

- 5 Go to the common procedure "Clearing PM C-side faults" in this document.
Complete the procedure and return to this point.

If	Do
the LTC remains CBsy	Treat the CBsy LTC as a SysB LTC and go to step 25.
the LTC changes to SysB	step 6
one LTC unit returns to service	step 46
both LTC units return to service	step 48

- 6 Check the Ext header of the alarm banner.

If an FSP alarm	Do
is present	step 7
is not present	step 25

- 7 To locate the frame supervisory panel (FSP) alarm, type

>EXT; LIST FSP

and press the Enter key.

Example of a MAP response:

FSPAISD

In this example, the alarm is an FSP alarm on Aisle D.

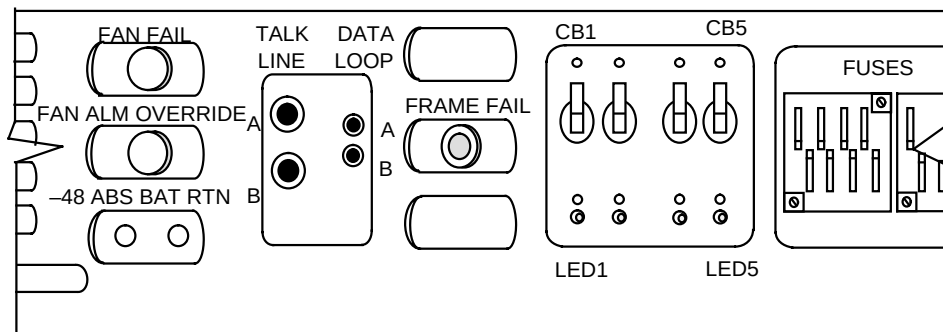
PM LTC critical (continued)

At the equipment aisle

- 8 Go to the aisle that you identified in step 7. The end aisle alarm is lit.

At the equipment frame

- 9 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.

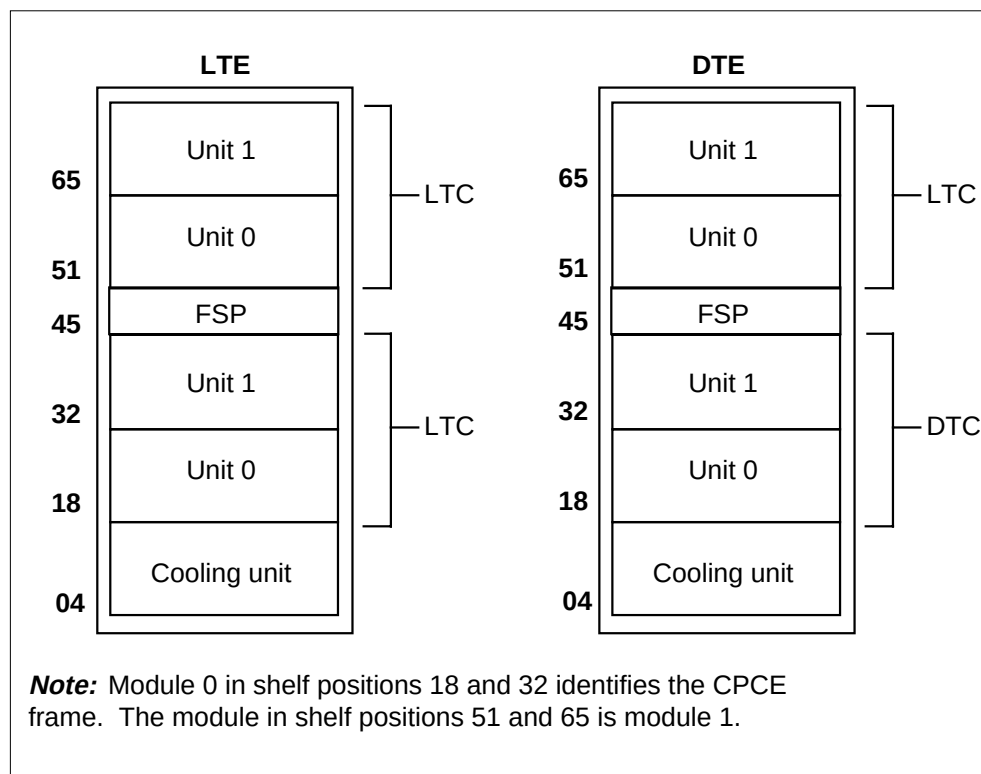


Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

- 10 The following figure shows a line trunk equipment (LTE) and a digital trunk equipment (DTE) frame. Because this is an LTC critical alarm, the frame type that contains the LTC is a CPCE type. The CPCE frame can be an LTE frame, or a line group equipment (LGE) frame. The CPCE frame type also can be a DTE frame. Identify the PMs in the frame. Refer to the following figure for help.

PM LTC

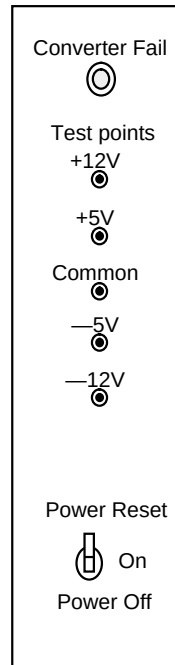
critical (continued)



- 11 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LTC shelf design" for help to locate this card. Refer to the following figure of an NT2X70AE card for help to check the Converter Fail LED.

PM LTC

critical (continued)



If any LEDs	Do
are lit	step 12
are not lit	step 16

12 Note the LTC with the LED lamps on.

At the MAP display

13

ATTENTION

Record the active unit (0 or 1) to use later in this procedure. When you manually busy the LTC, unit activity will not display.

To post the system busy LTC, type

>PM; POST LTC ltc_no

and press the Enter key.

where

ltc_no

is the number (0 to 255) of the LTC that you recorded in step 4

Example of a MAP response:

PM LTC
critical (continued)

PM Type: LTC PM No.: 0 PM Int. No: 0 Node_No.: 21
PMs Equipped: 38 Loadname: ECL07BI
Unit 0 is patched
Unit 1 is patched

	If a Mtce indicator	Do
	appears next to either unit	step 14
	does not appear	step 15
- 14** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.
- | | If the critical alarm | Do |
|--|------------------------------|-----------|
| | remains | step 15 |
| | changes | step 46 |
| | clears | step 48 |
- 15** Determine if the LTC is the same as the LTC that you identified in step 12.
- | | If the LTC | Do |
|--|-------------------|-----------|
| | is different | step 16 |
| | is the same | step 17 |
- 16** Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 6.
- 17** To busy the LTC, type
>BSY PM
and press the Enter key.
- 18** Choose the active unit to work on, as recorded in step 13.

At the equipment frame

- 19** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 20** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

PM LTC critical (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 0:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

21		If the PRL card or packlet	Do
		is present	step 21
		is not present	step 24
		Determine if the LTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card.	
		If the LTC is equipped with an	Do
	NT7X05 PRL card	step 22	
	NTSX06 PRL packlet	step 23	

PM LTC

critical (continued)

- 22 To load the LTC from the local image, type

>LOADPM PM LOCAL IMAGE

and press the Enter key.

If the load	Do
passed	step 37
failed	step 23

- 23



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the LTC from the local loadfile, type

>LOADPM PM LOCAL LOADFILE

and press the Enter key.

If the load	Do
passed	step 37
failed	step 24

- 24 To load the LTC that you worked on in step19, type

>LOADPM PM

and press the Enter key.

If the load	Do
failed, and the system generated a card list	step 38
failed, and the system did not generate a card list	step 47
passed	step 37

PM LTC critical (continued)

- 25** To post the LTC, type
>POST LTC ltc_no
 and press the Enter key.
where
ltc_no
 is the number (0 to 255) of the LTC that you recorded in step 4
Example of a MAP response:

```
LTC      0          SysB Links_00S: CSide 20, PSide 0
Unit0:    Act       SysB
Unit1:    Inact     SysB
```

If a Mtce indicator	Do
appears next to either unit	step 26
does not appear	step 27

- 26** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.

If the critical alarm	Do
remains	step 27
changes	step 46
clears	step 48

- 27** To query the LTC for fault indications, type
>QUERYPM FLT
 and press the Enter key.

Example of a MAP response:
 Activity dropped

- 28** Record the MAP response.

If the MAP response for the unit that you selected	Do
is SWACT In Progress	step 29
is Load Corruption	step 30
is Load Failed	step 30
is Distributed Data Loading Failed	step 30

PM LTC

critical (continued)

	If the MAP response for the unit that you selected	Do
	is Activity dropped	step 30
	is Not loaded since power up	step 30
	is other than listed here	step 36
29	In an attempt to recover the LTC, the system switches the activity between the two LTC units. Wait until system maintenance is complete.	
	If	Do
	the LTC units do not return to service	step 36
	one LTC unit returns to service	step 46
	both LTC units return to service	step 48
30	To busy the LTC, type >BSY PM and press the Enter key.	
31	The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type >QUERYPM FILES and press the Enter key. Note: If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid <i>Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:</i> Unit 0: Flash load File: ECL07BI  (Processor load file name) Flash Image File: ECL07BI Flash Image Timestamp: 1996/01/17 16:01:52.944 WED. Unit 1: Flash load File: ECL07BI Flash Image File: ECL07BI Flash Image Timestamp: 1996/01/17 16:04:52.944 WED. <i>Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:</i>	

PM LTC

critical (continued)

```

Unit 0:
Slotlet 0:
  Flash Load File: QLI10BI ← (Processor load file name)
  Flash Image File: QLI10BI
  Flash CMR File: CMR07A
Unit 1
Slotlet 0:
  Flash Load File: QLI10BG ** Mismatch **
  Flash Image File: QLI10BG ** Mismatch **
  Flash CMR File: CMR07A

```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If a PRL card or packlet	Do
is present	step 32
is not present	step 35

- 32** Determine if the LTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```

QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor

```

Example of a MAP response if an SX05 processor is present

```

QueryPM config
UNIT 0   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
UNIT 1   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet

```

If the LTC is equipped with an	Do
NT7X05 PRL card	step 33
NTSX06 PRL packlet	step 34

PM LTC

critical (continued)

- 33** To load the LTC from the local image, type

>LOADPM PM LOCAL IMAGE

and press the Enter key.

If the load	Do
passed	step 37
failed	step 34

- 34**



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the LTC from the local loadfile, type

>LOADPM PM LOCAL LOADFILE

and press the Enter key.

If the load	Do
passed	step 37
failed	step 35

- 35** To load the LTC, type

>LOADPM PM

and press the Enter key.

If the load	Do
failed, and the system generated a card list	step 38
failed, and the system did not generate a card list	step 47
passed	step 37

PM LTC critical (continued)

- 36** To busy the LTC, type
>BSY PM
and press the Enter key.
- 37** To return the LTC to service, type
>RTS PM
and press the Enter key.

If	Do
the LTC failed to return to service, and the system generated a card list	step 38
one LTC unit returns to service	step 46
both LTC units return to service	step 48

At the equipment frame

- 38** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help to locate this card.
- The MAP response in step 13 (if you completed this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTSX05
Activity Dropped	NTMX77, NTSX05
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
Load Corruption	NT6X42, NTMX77, NTSX05
Load Failed	NTMX77, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTSX05

PM LTC

critical (continued)

If you replace	Do
an NT6X42 or MTMX77 card	step 39
an NTSX05 card	step 40
any other card	step 44

At the MAP display

- 39** Use the information that you recorded in step 13 to load the active LTC unit. To load the active LTC unit from the local image on the NT7X05 or NTSX06 PRL card, type

>LOADPM ACTIVE LOCAL IMAGE

and press the Enter key.

If the load	Do
passed	step 42
failed	step 40

40



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the active LTC unit from the local loadfile on the PRL card, type

>LOADPM ACTIVE LOCAL LOADFILE

and press the Enter key.

If the load	Do
passed	step 42
failed	step 41

- 41** To load the active LTC unit from the CM, type

>LOADPM ACTIVE

PM LTC critical (continued)

and press the Enter key.

If the load	Do
passed	step 42
failed	step 47

- 42** To query the LTC counters for the firmware load on the NTMX77 or NTSX05 type

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP display for an LTC equipped with an NTMX77:

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

Unit 1:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: [MX77NG03], Executable: [MX77NG03],

UP:MX77AA

NTMX77 Firmware loadname

Example of a MAP display for an LTC equipped with an NTSX05:

PM LTC**critical** (continued)

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: SA01 Executable: SA01
UP: SX05AA
IP: BX01

```

NTSX05 Firmware
loadname version

	If firmware	Do
	is valid	step 44
	is invalid	step 43
43	To load the NTMX77 or NTSX05 firmware, type >LOADFW ACTIVE and press the Enter key.	
	If load	Do
	passed	step 44
	failed	step 47
44	To return the active LTC unit to service, type >RTS ACTIVE and press the Enter key.	
	If the unit	Do
	does not return to service, and you did not replace all cards on the list of cards that have faults	step 45
	does not return to service, and you replaced all cards on the list of cards that have faults	step 47
	fails and the system did not generate a card list	step 47

PM LTC
critical (end)

If the unit	Do
returns to service	step 46

At the equipment frame

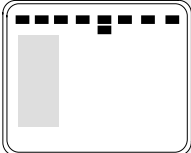
- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help in how to locate this card.

If you replace	Do
an NTMX77 or NT6X42 card	step 39
an NTSX05 card	step 40
any other cards	step 44

- 46** The LTC critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 48.
- 47** You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to clear this alarm.
- 48** The procedure is complete.

PM LTC major

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
	.	.	.	.	1LTC	.	.	.	.
					M				

Indication

At the MTC level of the MAP display, LTC (preceded by a number and followed by an M) appears under the PM header of the alarm banner. The LTC indicates a major alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC major alarm.

Meaning

The LTC is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in service

Result

The alarm does not affect service. A backup unit is not available within the LTC.

Common procedures

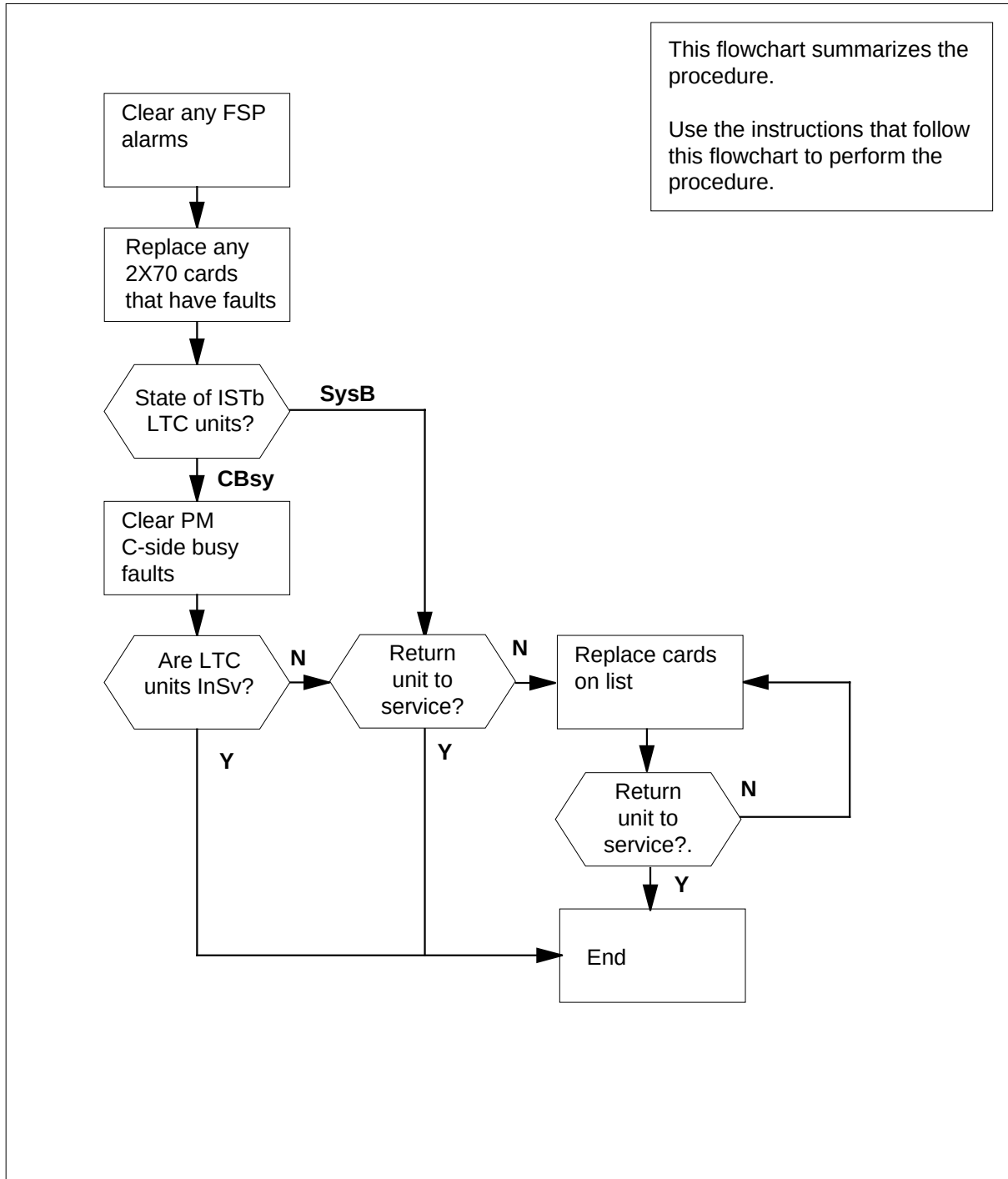
The procedure refers to the following common procedures:

- "Clearing C-side faults"
- "Monitoring system maintenance"

Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LTC
major (continued)****Summary of clearing a PM LTC major alarm**

PM LTC

major (continued)

LTC shelf design

Paddle boards		Cards	
25R		NT2X70 Power converter card	25F
24R		NT0X50 Filler faceplate	24F
23R		NT0X50 Filler faceplate	23F
22R		NT6X40 DS30 C-side interface card	22F
21R		NT6X41 Speech bus formatter card	21F
20R	NTMX71 XPM+ terminator PB	NT6X42 CSM card	20F
19R		NT0X50 Filler faceplate	19F
18R		NT6X69 Message protocol card	18F
17R		NT6X92 Universal tone receiver card	17F
16R		NTBX01 ISDN signaling preprocessor	16F
15R		NT6X92 Universal tone receiver card	15F
14R		NT6X44 Time switch card, or NTAX78 Time switch card (Note 1)	14F
13R		NT0X50 Filler faceplate	13F
12R		NTMX77 Unified processor	12F
12R		NTSX05 SX05 processor (Note 2)	12F
11R		NT0X50 Filler faceplate	11F
10R		NT0X50 Filler faceplate	10F
09R		NT0X50 Filler faceplate	09F
08R		NT0X50 Filler faceplate	08F
07R		NT0X50 Filler faceplate	07F
06R		NT6X48 DS30A Interface card	06F
05R		NT6X48 DS30A Interface card	05F
04R		NT6X50 DS-1 Interface card	04F
03R		NT6X50 DS-1 Interface card	03F
02R		NT6X50 DS-1 Interface card	02F
01R		NT6X50 DS-1 Interface card	01F

← Rear
Front →

Note 1: Note: The NTAX78BA Enhanced Time Switch card (shown in 14F) supports twice the number of P-side ports as the NT6X44 card (40 ports instead of 20 ports)

Note 2: Beginning with NA011/XPM11, the NTSX05AA processor is supported in the LTC and LTCI with a QLI load.

PM LTC major (continued)

Clearing a PM LTC major alarm

At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI ; MTC ; PM

and press the Enter key.

Example of a MAP display response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If

an audible alarm rings

no audible alarm rings

Do

step 2

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LTCs, type

>DISP STATE ISTB LTC

and press the Enter key.

Example of a MAP display response:

ISTB LTC : 0

Note: If multiple LTCs are ISTb, select an LTC on which to work. Record the number of the LTC.

- 4 Check the Ext header of the alarm banner for a frame supervisory panel (FSP) alarm.

If an FSP alarm

is present

is not present

Do

step 5

step 22

- 5 To locate the FSP alarm, type

>EXT ; LIST FSP

and press the Enter key.

Example of a MAP display response:

FSPAISD

PM LTC major (continued)

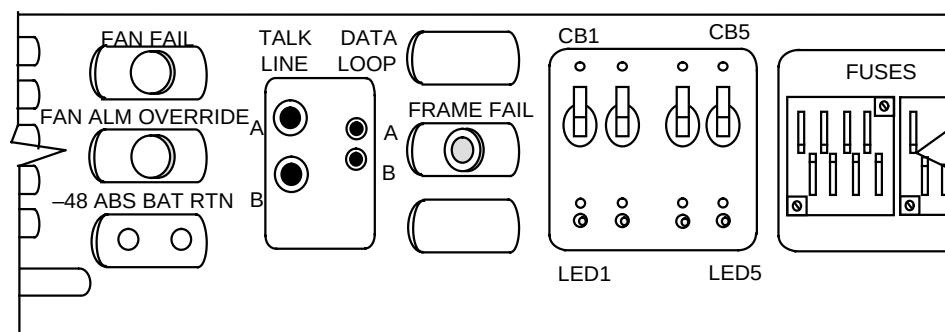
In this example, the alarm is an FSP alarm on Aisle D.

At the equipment aisle

- 6 Go to the aisle that you identified in step 5. The end aisle alarm is lit.

At the equipment frame

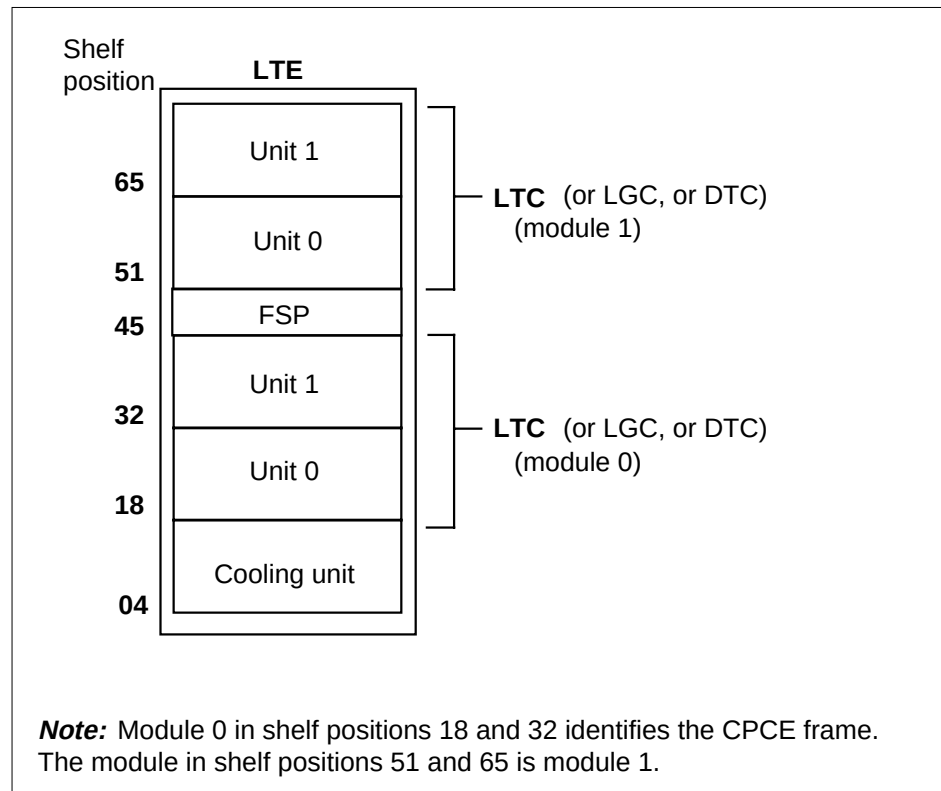
- 7 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit fail lamp.



Note: The CB3 does not fit in a frame for a common peripheral controller equipment (CPCE).

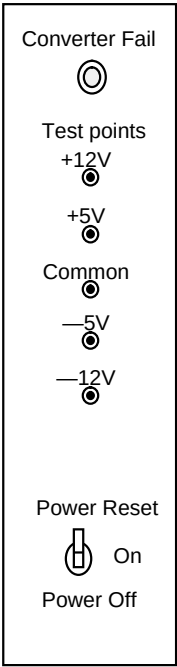
- 8 The following figure shows a line trunk equipment (LTE) frame. Because this is an EXT FSP alarm, the frame that contains the LTC is a common peripheral control equipment (CPCE) type and can be an LTE frame. The FSP alarm also can appear in a digital trunk equipment (DTE) frame or a line group equipment (LGE) frame. Identify the PMs in the frame. Refer to the following figure for help.

PM LTC major (continued)



- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LTC shelf design" in this procedure for help to locate this card. Refer to the following figure of an NT2X70AE card for help to check the Converter Fail LED.

PM LTC
major (continued)



If any LEDs	Do
are lit	step 10
are not lit	step 14

10 Note the LTC with the LED lamp on.

At the MAP display

11 To post the LTC, type
>PM; POST LTC ltc_no
and press the Enter key.
where
ltc_no
is the number (0 to 255) of the LTC that you recorded in step 3
Example of a MAP display response:

PM LTC
major (continued)

LTC 0 ISTb Links_00S: CSide 17, PSide 0
Unit0: Act InSv
Unit1: Inact CBSy

	If a Mtce indicator	Do
	appears next to either unit	step 12
	does not appear	step 13
12	Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.	
	If the major alarm	Do
	remains	step 13
	changes	step 47
	clears	step 49
13	Determine if the LTC is the same as the LTC that you identified in step 10.	
	If the LTC	Do
	is different	step 14
	is the same	step 15
14	Clear the FSP alarm. Perform the correct alarm clearing procedure in this manual. Complete the procedure and return to step 4.	
15	To busy the SysB LTC unit, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number (0 to 1) of the LTC unit	

At the equipment frame

- 16** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

At the MAP display

- 17** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

PM LTC

major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 1:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

	If the PRL card or packlet	Do
	is present	step 18
	is not present	step 21
18	Determine if the LTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card.	
	If the LTC is equipped with an	Do
	NT7X05 PRL card	step 19
	NTSX06 PRL packlet	step 20

PM LTC major (continued)

- 19** To load the LTC unit from the local image, type
>LOADPM UNIT unit_no LOCAL IMAGE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LTC unit

If the load	Do
passed	step 36
failed	step 20

- 20**



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LTC unit from the local loadfile, type
>LOADPM UNIT unit_no LOCAL LOADFILE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LTC unit

If the load	Do
passed	step 36
failed	step 21

- 21** To load the LTC unit, type
>LOADPM UNIT unit_no
 and press the Enter key.

where

PM LTC major (continued)

	unit_no is the number (0 to 1) of the LTC unit								
	<table> <tr> <th>If the load</th><th>Do</th></tr> <tr> <td>failed, and the system generated a card list</td><td>step 37</td></tr> <tr> <td>failed, and the system did not generate a card list</td><td>step 48</td></tr> <tr> <td>passed</td><td>step 36</td></tr> </table>	If the load	Do	failed, and the system generated a card list	step 37	failed, and the system did not generate a card list	step 48	passed	step 36
If the load	Do								
failed, and the system generated a card list	step 37								
failed, and the system did not generate a card list	step 48								
passed	step 36								
22	To post the LTC, type >POST LTC ltc_no and press the Enter key. <i>where</i> ltc_no is the number (0 to 255) of the LTC that you recorded in step 3 <i>Example of a MAP display response:</i> <pre>LTC 0 InSv Links_00S: CSide 20, PSide 0 Unit0: Act InSv Unit1: Inact SysB</pre> <table> <tr> <th>If a Mtce indicator</th><th>Do</th></tr> <tr> <td>appears next to either unit</td><td>step 23</td></tr> <tr> <td>does not appear</td><td>step 24</td></tr> </table>	If a Mtce indicator	Do	appears next to either unit	step 23	does not appear	step 24		
If a Mtce indicator	Do								
appears next to either unit	step 23								
does not appear	step 24								
23	Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point. <table> <tr> <th>If the alarm</th><th>Do</th></tr> <tr> <td>remains</td><td>step 24</td></tr> <tr> <td>changes</td><td>step 47</td></tr> <tr> <td>clears</td><td>step 49</td></tr> </table>	If the alarm	Do	remains	step 24	changes	step 47	clears	step 49
If the alarm	Do								
remains	step 24								
changes	step 47								
clears	step 49								
24	Determine the maintenance state of each LTC unit. <table> <tr> <th>If</th><th>Do</th></tr> <tr> <td>one unit is CBSy and the other unit is InSv or ISTb</td><td>step 25</td></tr> </table>	If	Do	one unit is CBSy and the other unit is InSv or ISTb	step 25				
If	Do								
one unit is CBSy and the other unit is InSv or ISTb	step 25								

PM LTC major (continued)

	If	Do
	one unit is SysB and the other unit is InSv or ISTb	Work on the SysB unit. Go to step 26.
25	Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and return to this point.	
	If	Do
	the LTC remains ISTb because one unit is SysB and the other is InSv or ISTb	Work on the SysB unit. Go to step 26.
	the LTC returns to service	step 49
26	To query the LTC for fault indications, type >QUERYPM FLT and press the Enter key. <i>Example of a MAP display response:</i> Activity dropped	
27	Record the MAP response.	
	If the MAP response	Do
	is SWACT In Progress	step 28
	is Load Corruption	step 29
	is Load Failed	step 29
	is Distributed Data Loading Failed	step 29
	is Activity dropped	step 29
	is other than listed here	step 35
28	In an attempt to recover the LTC, the system switches the activity between the two LTC units. Wait until system maintenance is complete.	
	If the LTC	Do
	does not return to service	step 35
	returns to service	step 49

PM LTC

major (continued)

- 29 To busy the LTC unit, type
>BSY UNIT unit_no
 and press the Enter key.
- 30 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type
>QUERYPM FILES
 and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
 Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If a PRL card or packet	Do
is present	step 31
is not present	step 34

- 31 Determine if the LTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type
>QUERYPM CONFIG

PM LTC major (continued)

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

```
QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0   Slot 12: SX05AA
          PCMCIA Slotlet 0: SX06CA
          PCMCIA Slotlet 1: No packlet
UNIT 1   Slot 12: SX05AA
          PCMCIA Slotlet 0: SX06CA
          PCMCIA Slotlet 1: No packlet
```

If the LTC is equipped with an	Do
NT7X05 PRL card	step 32
NTSX06 PRL packlet	step 33

- 32** To load the LTC from the local image, type
>LOADPM UNIT unit_no LOCAL IMAGE
 and press the Enter key.

where

unit_no
 is the number (0 to 1) of the LTC unit

If the load	Do
passed	step 36
failed	step 33

33



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

PM LTC major (continued)

To load the LTC unit from the local loadfile, type
>LOADPM UNIT unit_no LOCAL LOADFILE
and press the Enter key.

where

unit_no
is the number (0 to 1) of the LTC unit

If the load	Do
passed	step 36
failed	step 34

- 34** To load the LTC unit, type
>LOADPM UNIT unit_no
and press the Enter key.

If the load	Do
failed, and the system generated a card list	step 37
failed, and the system did not generate a card list	step 48
passed	step 36

- 35** To busy the LTC unit that has faults, type
>BSY UNIT unit_no
and press the Enter key.

where

unit_no
is the number (0 to 1) of the LTC unit

- 36** To return the LTC unit to service, type
>RTS UNIT unit_no
and press the Enter key.

where

unit_no
is the number (0 to 1) of the LTC unit

If the LTC unit	Do
failed, and the system generated a card list	step 37

PM LTC major (continued)

If the LTC unit	Do
failed, and the system did not generate a card list	step 48
passed	step 49

At the equipment frame

- 37** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help in how to locate this card.

The MAP response in step 11 (if you completed this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

MAP response	Suspect cards
PM Audit	NT6X69, NTMX77, NTSX05
Activity Dropped	NTMX77, NTSX05
No WAI Received	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
LINK Audit	NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05
Load Corruption	NT6X42, NTMX77, NTSX05
Load Failed	NTMX77, NTSX05
Distributed Data Loading Failed	NT6X69, NTMX77, NTSX05

If you	Do
replace an NT6X42, NTMX77, or NTSX05 card	step 38
replace any other card	step 45

At the MAP display

- 38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

PM LTC

major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

Note: If PRL cards are not present, the MAP response is:
Flash not datafilled. QueryPm files invalid

Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:

```
Unit 0:
  Flash load File: [ECL07BI] ← (Processor load file name)
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
  Flash load File: ECL07BI
  Flash Image File: ECL07BI
  Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:

```
Unit 0:
  Slotlet 0:
    Flash Load File: [QLI10BI] ← (Processor load file name)
    Flash Image File: QLI10BI
    Flash CMR File: CMR07A
Unit 1
  Slotlet 1:
    Flash Load File: QLI10BG ** Mismatch **
    Flash Image File: QLI10BG ** Mismatch **
    Flash CMR File: CMR07A
```

Note: If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

If a PRL card or packet	Do
is present	step 39
is not present	step 42

- 39** Determine if the LTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

Example of a MAP response if no SX05 processor is present

PM LTC major (continued)

```
QueryPM config
UNIT 0   Request invalid. Unit does not have SX05 processor
UNIT 1   Request invalid. Unit does not have SX05 processor
```

Example of a MAP response if an SX05 processor is present

```
QueryPM config
UNIT 0   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
UNIT 1   Slot 12: SX05AA
         PCMCIA Slotlet 0: SX06CA
         PCMCIA Slotlet 1: No packlet
```

If the LTC is equipped with an	Do
NT7X05 PRL card	step 40
NTSX06 PRL packlet	step 41

- 40** Use the information recorded in step 11 to load the inactive LTC unit. To load the inactive LTC unit from the local image on the NT7X05 PRL card, type

>LOADPM UNIT unit_no LOCAL IMAGE

and press the Enter key.

where

unit_no

is the number of the inactive LTC unit that you recorded in step 11

If the load	Do
passed	step 43
failed	step 41

- 41**



DANGER

Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the inactive LTC unit from the local loadfile on the PRL card, type

>LOADPM UNIT unit_no LOCAL LOADFILE

PM LTC

major (continued)

and press the Enter key.

where

unit_no

is the number of the inactive LTC unit that you recorded in step 11

If the load	Do

passed	step 43

failed	step 42

42 To load the inactive LTC unit from the CM, type

>LOADPM UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the inactive LTC unit that you recorded in step 11

If the load	Do

passed	step 43

failed	step 48

43 To query the LTC counters for the firmware load on the NTMX77 or NTSX05 type

>QUERYPM CNTRS

and press the Enter key.

Example of a MAP display for an LTC equipped with an NTMX77:

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

Unit 1:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: [MX77NG03], Executable: [MX77NG03]

UP:MX77AA

NTMX77 Firmware
loadname

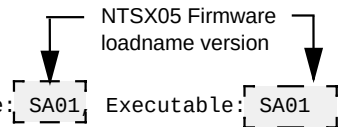
Example of a MAP display for an LTC equipped with an NTSX05:

PM LTC major (continued)

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPROM Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```



If firmware	Do
is valid	step 45
is invalid	step 44

- 44** To load the NTMX77 or NTSX05 firmware, type
>LOADFW UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the inactive LTC unit that you recorded in step 11

If the load	Do
passed	step 45
failed	step 48

- 45** To return the LTC unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where
unit_no
 is the number of the inactive LTC unit that you recorded in step 11

If the unit	Do
does not return to service, and you did not replace all cards on the list of cards that have faults	step 46
does not return to service, and you replaced all cards on the list of cards that have faults	step 48

PM LTC major (end)

If the unit	Do
fails, and the system did not generate a card list	step 48
returns to service	step 49

At the equipment frame

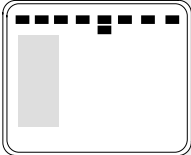
- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help to locate this card.

If you replace	Do
an NTMX77, NTSX05 or NT6X42 card	step 38
any other cards	step 45

- 47** The LTC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

PM LTC minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LTC	.	.	.	.	.

Indication

At the MTC level of the MAP display, an LTC (preceded by a number) appears under the PM header of the alarm banner. The LTC indicates a minor alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC minor alarm.

Meaning

The LTC is in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in service
- one unit is ISTb and one unit is manual busy
- one unit is in service and one unit is manual busy
- both units are in service with some P-side links or C-side links that are out of service

Result

The alarm does not affect service.

Common procedures

The procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

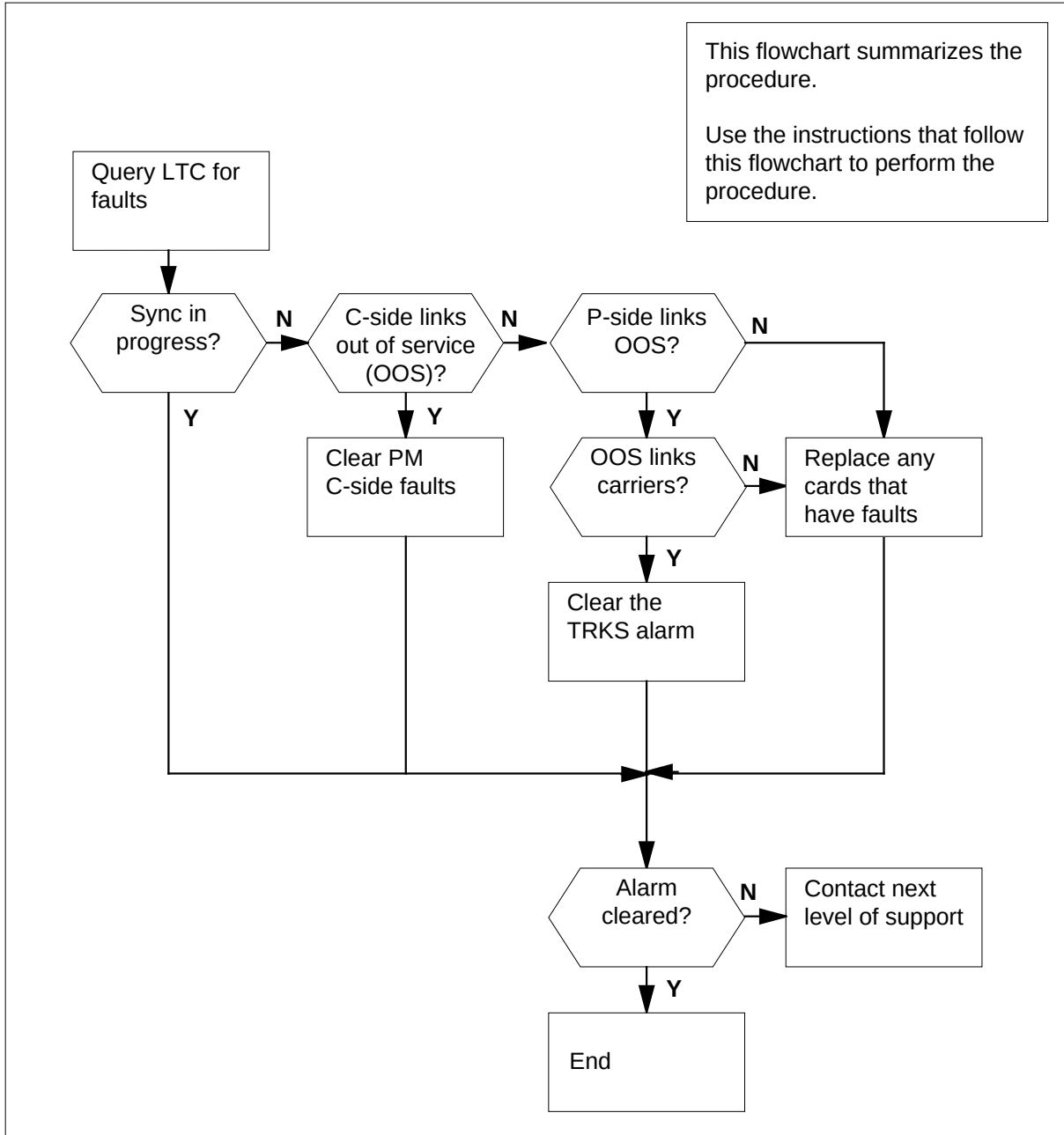
Do not go to the common procedures unless the step-action procedure directs you to go.

PM LTC minor (continued)

Action

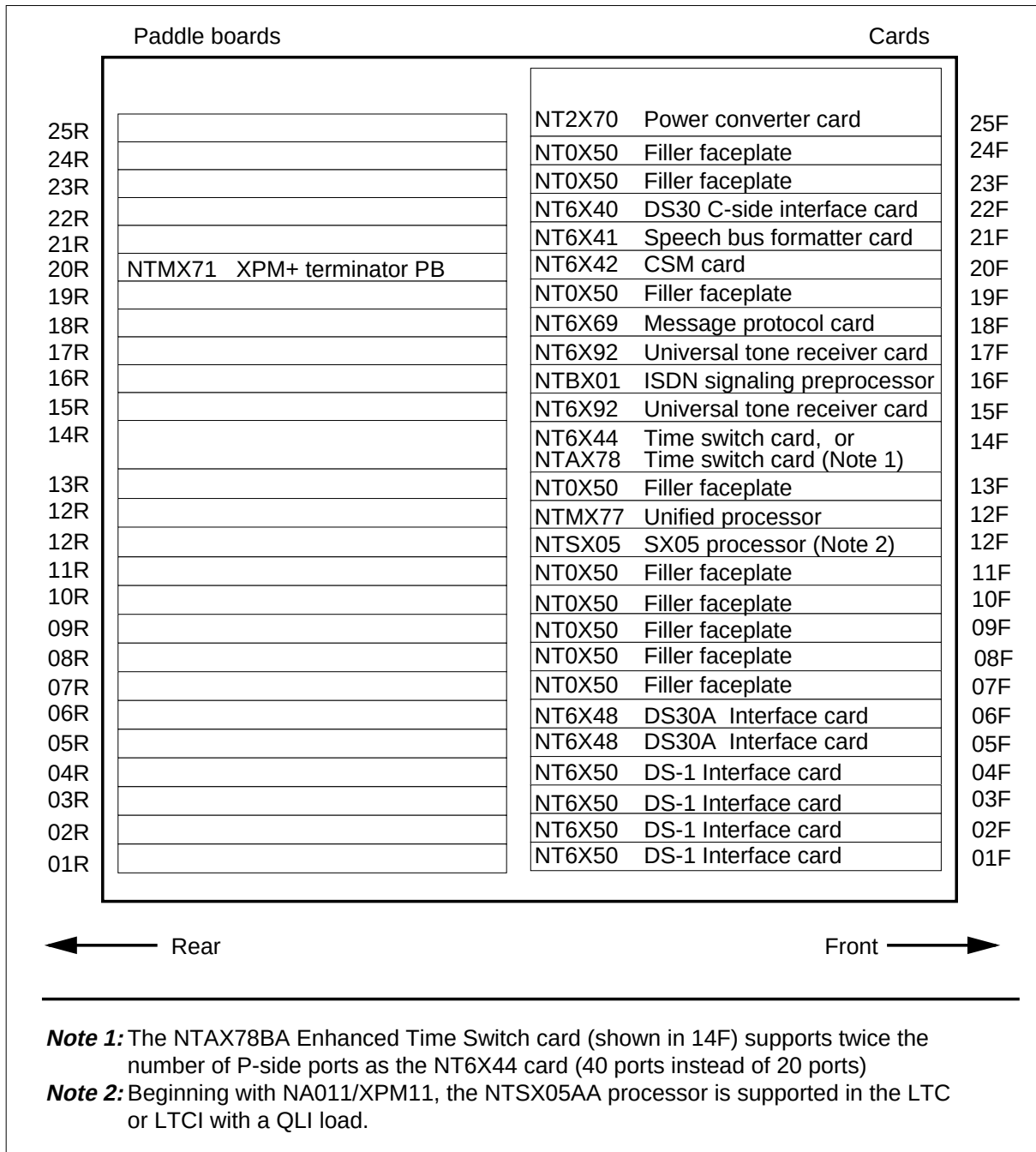
This section provides a summary flowchart and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

Summary of clearing a PM LTC minor alarm



PM LTC minor (continued)

LTC shelf design



PM LTC

minor (continued)

Clearing a PM LTC minor alarm

At the MAP display

- 1** To access the PM level of the MAP display, type

>MAPCI ; MTC ; PM

and press the Enter key.

Example of a MAP display response:

PM	SysB 1	ManB 3	OffL 5	CBsy 7	ISTb 6	InSv 12

If

Do

an audible alarm rings

step 2

no audible alarm rings

step 3

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To display all the ISTb LTCs, type

>DISP STATE ISTB LTC

and press the Enter key.

Example of a MAP display response:

ISTb LTC : 0

Note: If multiple LTCs are ISTb, select an LTC on which to work. Repeat this procedure for each LTC that is ISTb.

Record the number of the LTC.

- 4** To post the LTC, type

>POST LTC ltc_no

and press the Enter key.

where

ltc_no

is the number (0 to 255) of the LTC that you recorded in step 3

Example of a MAP display response:

PM LTC minor (continued)

LTC 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb Mtce

	If a Mtce flag	Do
	appears next to either unit	step 5
	does not appear	step 6
5	Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.	
	If the LTC minor alarm	Do
	remains	step 6
	changes	step 35
	clears	step 36
6	Select an LTC unit to recover.	
	If	Do
	one unit is ISTb and one unit is InSv	step 7
	both units are ISTb	Work on the inactive unit and go to step 11.
	one unit is ManB and one unit is ISTb or InSv	Work on the manually busy unit and go to step 11.
7	Determine if the ISTb unit is active or inactive.	
	If the ISTb unit	Do
	is active	step 8
	is inactive	Work on the in-service trouble unit and go to step 11.

PM LTC

minor (continued)

8

**CAUTION****Possible loss of service**

Confirm a cold SWACT during a period of low traffic. If you confirm a cold SWACT during a period of high traffic, the calls that the LTC handles will drop.

To switch the activity of the units, type

>SWACT

and press the Enter key.

The switch determines if you must perform a cold SWACT or a warm SWACT. The switch also shows a confirmation prompt for the selected SWACT.

If the switch of activity	Do
cannot continue	step 9
can continue	step 10

9

To reject the prompt, type

>NO

and press the Enter key.

The system discontinues the switch of activity. Go to step 34.

10

To confirm the switch of activity, type

>YES

and press the Enter key.

The switch switches the activity between the active unit and the inactive unit. A Mtce flag appears during the switch of activity. Wait until the flag disappears before you proceed.

If the MAP response is	Do
SWACT Passed	Work on the inactive unit and go to step 11.
SWACT failed Reason: XPM SWACTback	step 34
SWACT refused by SWACT controller	step 34

PM LTC minor (continued)

- 11** To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

Note: The in-service trouble condition of the LTC can be the result of multiple causes. The LTC and the LTC units remain ISTb until all the in-service trouble conditions clear.

If the MAP response is	Do
Dynamic data sync in progress	step 12
Superframe sync in progress	step 12
CLASS Modem Resource Card 6X78 out of service	step 13
CMR Load not present	step 16
Static data mismatch with CC	step 19
P-side links out of service	step 21
C-side links out of service	step 31
other than listed here	step 34

- 12** Wait 5 min for the system to return the LTC to service.

If the LTC minor alarm	Do
clears	step 36
does not clear	step 34

- 13**



CAUTION

Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR card, type

>BSY UNIT unit_no CMR

and press the Enter key.

PM LTC minor (continued)

where

unit_no

is the number of the LTC unit (0 or 1) that contains the CMR card

- 14** To test the CMR card, type
>TST UNIT unit_no CMR
and press the Enter key.

where

unit_no

is the number of the LTC unit (0 or 1) that contains the CMR card

If the TST command	Do
fails	step 15
passes	step 18

At the equipment frame

- 15** Replace the CMR card (NT6X78). Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 17.

At the MAP display

- 16** To manually busy the CMR card, type
>BSY UNIT unit_no CMR
and press the Enter key.

where

unit_no

is the number of the LTC unit (0 or 1) that contains the CMR card

- 17** To load the CMR card, type
>LOADPM UNIT unit_no CMR
and press the Enter key.

where

unit_no

is the number of the LTC unit (0 or 1) that contains the CMR card

If the LOADPM command	Do
passes	step 18
fails, and you replaced the CMR card	step 34
fails, and you did not replace the CMR card	step 15

PM LTC minor (continued)

- 18** To return the CMR card to service, type

>RTS UNIT unit_no CMR

and press the Enter key.

where

unit_no

is the number of the LTC unit (0 or 1) that contains the CMR card

If the RTS command	Do
passes and the LTC returns to service	step 36
passes and the LTC does not return to service	step 33
fails	step 34

- 19**



CAUTION

Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive in-service-trouble LTC unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the LTC unit (0 or 1)

- 20** To return the LTC unit to service, type

>RTS UNIT unit_no

and press the Enter key.

where

PM LTC

minor (continued)

unit_no
is the number of the LTC unit (0 or 1)

	If the RTS command	Do
	passes, and the LTC unit returns to service	step 36
	passes, and the LTC unit does not return to service	step 33
	fails	step 34
21	To identify the out-of-service P-side links, type >TRNSL P and press the Enter key. <i>Example of a MAP display response:</i> Link 0: Carrier of Class - Timing;Status:Offl Link 1: Carrier of Class - Trunk ;Status:OK Link 18: Carrier of Class - Trunk ;Status:OK Link 19: Carrier of Class - Trunk ;Status:OK Note: Links 2 to 17 and 20-39 do not appear in this example.	
22	Record the number and state of all the out-of-service P-side links. Note: P-side links with a status of OK are in service. Any other status indicates a P-side link that is out of service. The MAP display can identify P-side links as a CARRIER.	
	If the out-of-service links	Do
	are carriers	step 23
	are links	step 24
23	Clear the Trks alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.	
	If the LTC minor alarm	Do
	clears	step 36
	does not clear	step 34
24	Choose a link on which to work.	
	If the link	Do
	is SysB	step 25

PM LTC minor (continued)

	If the link	Do
	is ManB	step 26
25	To manually busy the link, type >BSY LINK link_no and press the Enter key. <i>where</i> link_no is the number of the link (0 to 39)	
26	To test the link, type >TST LINK link_no and press the Enter key. <i>where</i> link_no is the number of the link (0 to 39)	
	If the TST command	Do
	passes	step 27
	fails, and the system generates a card list	step 28
	fails, and the system does not generate a card list	step 34
27	To return the link to service, type >RTS LINK link_no and press the Enter key. <i>where</i> link_no is the number of the link (0 to 63)	
	If the RTS command	Do
	fails, and the system generates a card list	step 28
	fails, and the system does not generate a card list	step 34
	passes, and other out-of-service links are present	step 24
	passes, and the LTC remains ISTb	step 34
	passes, and the LTC minor alarm clears	step 36

PM LTC
minor (continued)

At the equipment frame

- 28** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

At the MAP display

- 29** To return the link to service, type

>RTS LINK link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 63)

If the RTS command	Do
fails, and you did not replace all cards on the list	step 30
fails, and you replaced all cards on the list	step 34
passes but other out-of-service links are present	step 24
passes and the LTC remains ISTb	step 34
passes and the LTC minor alarm clears	step 36

- 30** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

- 31** Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.

- 32** To post the LTC, type

>PM;POST LTC ltc_no

and press the Enter key.

where

ltc_no

is the number of the LTC (0 to 255)

If the LTC	Do
is InSv	step 36
is ISTb one unit is ISTb or CBSy	step 33
is other than listed here	step 34

- 33** To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

**PM LTC
minor (end)**

and press the Enter key.

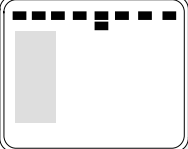
Note: In-service trouble condition of an LTC can be the result of multiple of causes. The LTC and LTC units remain ISTb until all the in-service trouble conditions clear.

	If the MAP response is	Do
	Dynamic data sync in progress	step 12
	Superframe sync in progress	step 12
	CLASS Modem Resource Card 6X78 out of service	step 13
	CMR Load not present	step 16
	Static data mismatch with CC	step 19
	P-side links out of service	step 21
	C-side links out of service	step 31
	indicates a fault you cleared during this procedure	step 34
	is other than listed here	step 34
34	You need additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps that you performed in your attempt to clear this alarm. Go to step 36.	
35	The LTC minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.	
36	The procedure is complete.	

PM LTCI

critical, major, or minor

Alarm display

	CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
	.	.	.	.	1LTCI	.	.	.	.	.
					C					

Indication

At the MTC level of the MAP display, LTCI (preceded by a number) appears under the PM header of the alarm banner. The LTCI indicates a critical, major, or minor alarm for an ISDN line trunk controller (LTCI).

Meaning

For a critical alarm, *C* appears under the alarm indicator. The system generates a critical alarm when the LTCI is system busy or C-side busy. An LTCI is system busy when both units are system busy. An LTCI is also system busy when one unit is system busy and the other unit is manually busy. An LTCI is C-side busy when both units are C-side busy.

For a major alarm, an M appears under the alarm indicator. The system generates a major alarm when the LTCI is manually busy, C-side busy, or in-service trouble (ISTb). An LTCI is manually busy when both units are manually busy. An LTCI is C-side busy with a major alarm when:

- one unit is C-side busy
- the other unit is system busy or manually busy

An LTCI is ISTb with a major alarm when:

- one unit is ISTb and the other unit is in service, C-side busy, manually busy, or ISTb
- one unit is manually busy and the other is in service
- both units are in service with some out-of-service P-side or C-side links

The number under the PM header in the alarm banner indicates the number of LTCIs affected.

Result

Service stops when an LTCI is system busy, C-side busy, or manually busy. Each subtending PM does not have service, unless the PM has Emergency Stand-Alone (ESA) capabilities. The condition does not affect service when

PM LTCI
critical, major, or minor (continued)

an LTCI is ISTb with a major or minor alarm. A backup unit is not present when one unit is manually busy and the other LTCI unit is ISTb. A backup unit is also not present when one unit is system busy and the other LTCI is ISTb. Service also continues in an in-service trouble LTCI as long as some P-side or C-side links are in service.

Common procedures

This procedure refers to

- *Loading a PM*
- *Correcting a load mismatch*

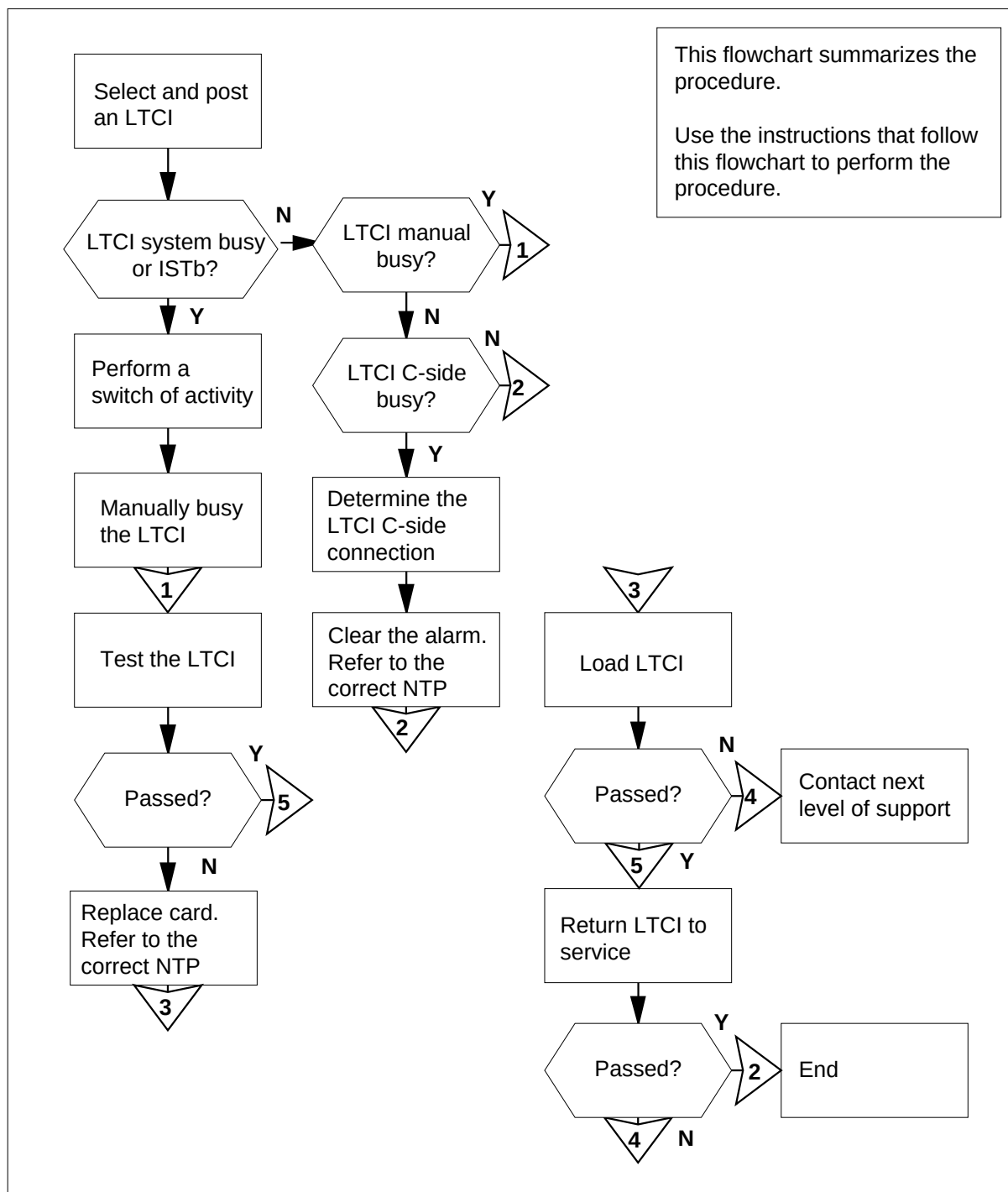
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LTCI critical, major, or minor (continued)

Summary of clearing a PM LTCI critical, major, or minor alarm



PM LTCI critical, major, or minor (continued)

Clearing a PM LTCI critical, major, or minor alarm

At the MAP

- 1** To access the PM level of the MAP, type

>MAPCI;MTC;PM

and press the Enter key.

Example of a MAP response:

PM	SysB	ManB	OffL	CBsy	ISTb	InSv
	1	3	5	7	6	12

- 2** Determine if an alarm is present under the Ext header of the MAP.

If an Ext alarm	Do
is present	step 3
is not present	step 4

- 3** Perform the correct alarm clearing procedure in this document.

- 4** Determine if an audible alarm rings.

If an alarm	Do
rings	step 5
does not ring	step 6

- 5** To silence the alarm, type

>SIL

and press the Enter key.

- 6** To display the status of all PMs, type

>STATUS

and press the Enter key.

Example of a MAP response:

PM LTCI

critical, major, or minor (continued)

TM8	0	0	0	0	0	1
MTM	0	0	0	0	1	3
STM	0	0	0	0	0	2
LM	0	0	1	0	0	1
LGC	0	0	0	0	0	3
LCM	0	0	0	0	1	0
DTC	3	0	0	0	1	1
LTC	0	0	0	0	2	1
LCMI	0	0	1	0	0	1
LTCI	0	0	0	1	1	1
LCME	0	1	0	0	1	1

- 7 Determine the state of the LTCIs.

If the state of one LTCI	Do
is system busy (SysB)	step 8
is C-side busy (CBsy)	step 64
is manually busy (ManB)	step 72
is in-service trouble (ISTb)	step 90

- 8 To display all system busy LTCIs, type

>DISP STATE SYSB LTCI

and press the Enter key.

Example of a MAP response:

SysB LTCI : 0,3,5

- 9 Record the number of each system busy LTCI.

- 10 Choose an LTCI on which to work.

- 11 To post the LTCI, type

>POST LTCI ltci_no

and press the Enter key.

where

ltci_no

is the number of the LTCI (0 to 255)

Example of a MAP response:

PM LTCI critical, major, or minor (continued)

```
LTCI      0 SysB  Links_00S: CSide  0 , PSide  0
Unit0:    Act    ManB
Unit1:    Inact  SysB      Mtce
```

If	Do
one LTCI is ManB and the other LTCI is SysB	step 12
both LTCI units are SysB and Mtce appears next to either unit	step 13
both LTCI units are SysB and Mtce does not appear next to either unit	step 15

12 Go to step 76 to work on the manually busy unit first.

13 A maintenance flag (Mtce) appears in the MAP display when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action.

Note: The status of system maintenance appears on the right of the maintenance flag in the MAP display. The flag appears for a maximum of 60 minutes. The length of time required for system maintenance depends on the number and type of PMs in your office.

If, after 60 min, the flag	Do
did not disappear	step 161
disappears	step 14

14 Determine if the LTCI is in service.

If the state of the LTCI	Do
is InSv	step 162
is other than listed here	step 6

15 To determine the location of the LTCI, type

>QUERYPM

and press the Enter key.

Example of a MAP response:

PM LTCI critical, major, or minor (continued)

```
PM Type: LTCI PM No.: 0 PM Int. No.: 0 Node_No: 18
PMs Equipped: 53 Loadname: NLT35CC
WARM SWACT is supported but not possible: node
redundancy lost
LTCI 0 is included in the REX schedule.
REX on LTCI 0 has not been performed.
Node Status: {MACHINE_BUSY, TRUE}
Unit 0 Act, Status: {MACHINE_BUSY, TRUE}
Unit 1 Inact, Status: {MACHINE_BUSY, TRUE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 00 B01 LTE 00 18 LTCI: 000 6X02AA
```

At the LTE frame

- 16** Determine if a power fault is the cause of the system busy condition. Examine the LTCIs in the LTC equipment (LTE) frame for a power converter fault.

Note: To check for a power fault, examine the fail lamp on the power converter (NT2X70) on each unit of the LTCI.

If the fail lamp	Do
is lit on either converter	step 17
is not lit on either converter	step 30

- 17** Determine if one or both LTCI units are system busy.

If	Do
one LTCI unit is SysB	step 18
both LTCI units are SysB	step 24

At the MAP terminal

- 18** To manually busy the LTCI unit, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the number of the system busy LTCI unit (0 or 1)

If the BSY command	Do
passes	step 20
fails	step 19

PM LTCI critical, major, or minor (continued)

- 19** To force the LTCI unit to busy, type
>BSY UNIT unit_no FORCE
 and press the Enter key.
where
 unit_no
 is the number of the system busy LTCI unit (0 or 1)
- 20** To replace the NT2X70 card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 21** To load the LTCI unit, type
>LOADPM UNIT unit_no
 and press the Enter key.
where
 unit_no
 is the number of the LTCI unit (0 or 1) that you manually busied in
 step 18

If the LOADPM command	Do
passes	step 23
fails	step 22

- 22** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

- 23** To return the manual busy LTCI unit to service, type
>RTS UNIT unit_no
 and press the Enter key.
where

unit_no
 is the number of the LTCI unit (0 or 1) busied in step 18

If the RTS command	Do
passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 30
passes, the LTCI unit is InSv, but the fail lamp was on for the power converter on the other LTCI unit	step 18
passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11

PM LTCI critical, major, or minor (continued)

	If the RTS command	Do
	passes, both LTCI units are InSv, and other LTCIs are not SysB	step 162
	fails, and you replaced the defective power converter	step 39
24	To busy the LTCI, type >BSY PM and press the Enter key.	
	If the BSY command	Do
	passes	step 26
	fails	step 25
25	To force the LTCI to busy, type >BSY PM FORCE and press the Enter key.	
26	To replace the NT2X70 card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
27	To load the LTCI, type >LOADPM PM and press the Enter key.	
	If the LOADPM command	Do
	passes	step 29
	fails	step 28
28	Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.	
29	To return the LTCI to service, type >RTS PM and press the Enter key.	
	If the RTS command	Do
	passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 30
	passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11

PM LTCI
critical, major, or minor (continued)

	If the RTS command	Do
	passes, both LTCI units are InSv, and other LTCIs are not SysB	step 162
	fails, and you replaced the power convertert that has faults	step 53
30	To determine the cause of the system busy condition, type >QUERYPM FLT and press the Enter key. <i>Note: One unit can have more than one system busy condition at a given time. The unit remains system busy until all system busy conditions clear on the unit.</i>	
	If the MAP response	Do
	is PM Audit	step 15
	is activity dropped	step 15
	is WAI received	step 15
	is SWACT in progress	step 31
	is Link Audit	step 32
	is C-Side Link RTS	step 32
	is CC restart has oc-curred	step 36
	is ISP failed to re-pond to MP audit	step 36
	is unit SysB due to diagnostic failure	step 36
	is not loaded since power up	step 55
	is load corruption suspected	step 55
	is load failed	step 55

PM LTCI critical, major, or minor (continued)

	If the MAP response	Do
	is Distributed Data loading failed	step 55
	is other than listed here	step 161
31	The system performs maintenance on the unit that became the inactive (Inact) unit. The Mtce flag appears next to the unit when system maintenance is in progress. After system maintenance is complete, repeat step 30.	
32	To check the status of the C-side links, type >TRNSL C and press the Enter key. <i>Example of a MAP response:</i> Link 0: ENET 0 0 32 00 0;Cap MS;Status:OK Link 1: ENET 1 0 32 00 0;Cap MS;Status:OK Link 30: ENET 0 0 32 00 15;Cap S;Status:OK Link 31: ENET 1 0 32 00 15;Cap S;Status:OK Note 1: Link 2 to link 29 do not appear in the previous example. Note 2: The C-side links with a status of OK are in service. Any other status indicates an out-of-service C-side link.	
	If the links	Do
	are out of service	step 33
	are in service	step 36
33	Record the network, plane, and link number of the links that do not have a status of OK.	
34	Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.	
35	To post the LTCI that had out-of-service C-side links, type >PM;POST LTCI ltci_no and press the Enter key. <i>where</i> ltci_no is the number of the LTCI (0 to 255)	
	If	Do
	the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 16

PM LTCI critical, major, or minor (continued)

	If	Do
	both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11
	both LTCI units are InSv, and other LTCIs are not SysB	step 162
	the LTCI unit is InSv, while the other LTCI unit is ISTb	step 97
	both LTCI units are ISTb	step 100
36	Determine if one or both LTCI units are system busy.	
	If	Do
	one LTCI unit is SysB	step 37
	both LTCI units are SysB	step 52
37	To manually busy the system busy LTCI unit, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1)	
	If the BSY command	Do
	passes	step 39
	fails	step 38
38	To force the LTCI unit to busy, type >BSY UNIT unit_no FORCE and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1)	
39	To test the LTCI unit, type >TST UNIT unit_no and press the Enter key. <i>where</i>	

PM LTCI critical, major, or minor (continued)

unit_no

is the number of the LTCI unit (0 or 1) that you manually busied in

step 37

Example of a MAP response:

```
LTCI 0 Unit 1    Non-Destructive ROM test and
                  OSvce tests will be run
LTCI 0 Unit 1    Tst Passed
```

	If the TST command	Do
	passes	step 42
	fails and part of the response is check for possible logs	step 40
	fails and part of the response is Try PMRESET	step 41
	fails and part of the response is Invalid static data	step 42
	fails and the system generated a card list	step 43
	fails and the system did not generate a card list	step 47
	fails and part of the response is Unit failed to initialize, try reloading	step 47
	is other than listed here	step 161
40	Obtain the log that the system generated for the LTCI.	
	If the log	Do
	provides a card list	step 43
	does not provide a card list	step 48
41	To reset the LTCI unit, type >PMRESET UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1) that you manually busied in step 37	

PM LTCI critical, major, or minor (continued)

Example of a MAP response:
LTCI 0 Unit 1 PMReset Passed

	If the PMRESET command	Do
	passes	step 42
	fails	step 48
42	To return the manually busy LTCI unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1) that you manually busied in step 37	
	If the RTS command	Do
	passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11
	passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 16
	passes, and one LTCI unit is InSv, while the other LTCI unit is ManB	step 80
	passes, and one LTCI unit is InSv, while the other LTCI unit is ISTb	step 97
	passes, and both LTCI units are ISTb	step 100
	passes, and both LTCI units are InSv, and other LTCIs are not SysB	step 162
	fails, and the system generated a card list	step 43
	fails, and the system did not generate a card list	step 47
	is other than listed here	step 161
43	Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.	
44	To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	

PM LTCI**critical, major, or minor** (continued)

- 45 Determine if the card that you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).
- | If the card | Do |
|----------------------------------|---------|
| was an NT6X45, NT6X46, or NT6X47 | step 47 |
| was other than listed here | step 46 |
- 46 To reset the LTCI unit, type
>PMRESET UNIT unit_no
and press the Enter key.
where
unit_no
is the number of the LTCI unit (0 or 1) that you manually busied in
step 37
Example of a MAP response:
LTCI 0 Unit 1 PMReset Passed
- | If the PMRESET command | Do |
|---------------------------|---------|
| passes | step 49 |
| is other than listed here | step 47 |
- 47 To load the LTCI unit, type
>LOADPM UNIT unit_no
and press the Enter key.
where
unit_no
is the number of the LTCI unit (0 or 1) that you manually busied in step 37
- | If the LOADPM command | Do |
|-----------------------|---------|
| passes | step 49 |
| fails | step 48 |
- 48 Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.
- 49 To return the manually busy LTCI unit to service, type
>RTS UNIT unit_no
and press the Enter key.

PM LTCI critical, major, or minor (continued)

where

unit_no

is the number of the LTCI unit (0 or 1) that you manually busied in

step 37

Example of a MAP response:

LTCI 0 Unit 1 Rts Passed

If the RTS command	Do
passes, and both LTCIs are InSv, but you recorded other SysB LTCIs in step 9	step 11
passes, and the LTCI is InSv or ISTb, while the other LTCI is SysB	step 16
fails, and you did not replace all cards in the list that you recorded in step 43	step 50
passes, and one LTCI is InSv, while the other LTCI is ManB	step 80
passes, and the LTCI is InSv, while the other LTCI is ISTb	step 97
passes, and both LTCIs are ISTb	step 100
passes, and both LTCIs are InSv, and other LTCIs are not SysB	step 162
fails, and the system did not generate a card list	step 161
fails, and you replaced all cards in the list that you recorded in step 43	step 161
other than listed here	step 161

50 To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

51 Go to step 45.

52 To busy the LTCI, type

>BSY PM

and press the Enter key.

Example of a MAP response:

LTCI 0 Bsy Passed

PM LTCI critical, major, or minor (continued)

- 53** To test the LTCI, type
>TST PM
and press the Enter key.

Example of a MAP response:

```
LTCI 0 Unit 0   Non-Destructive ROM test and
                  OSvce tests will be run
LTCI 0 Unit 1   Non-Destructive ROM test and
                  OSvce tests will be run
LTCI 0 Unit 0   Tst Passed
LTCI 0 Unit 1   Tst Passed
```

If the TST command	Do
passes on both units	step 54
fails on one or both units, and part of the response is check for possible logs	step 40
fails on one or both units, and part of the response is Try PMRESET	step 41
fails on one or both units, and the system generated a card list	step 43
fails on one or both units, and the system did not gen- erate a card list	step 47
fails on one or both units, and part of the response is PM failed to initialize, try reload- ing	step 57
other than listed here	step 161

- 54** To return the LTCI to service, type
>RTS PM
and press the Enter key.

Example of a MAP response:
LTCI 0 Rts Passed

If the RTS command	Do
passes, and both LTCI units are InSv, but you record- ed other SysB LTCIs in step 9	step 11

PM LTCI critical, major, or minor (continued)

	If the RTS command	Do
	passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 16
	passes, and one LTCI unit is InSv, while the other LTCI unit is ISTb	step 97
	passes, and both LTCI units are ISTb	step 100
	passes, both LTCI units are InSv, and other LTCIs are not SysB	step 162
	fails on one unit, and the system did not generate a card list	step 43
	fails on one unit, and the system generated a card list	step 47
55	Determine if one or both LTCI units are system busy.	
	If	Do
	one LTCI unit is SysB	step 56
	both LTCI units are SysB	step 60
56	To manually busy the system busy LTCI unit, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the system busy LTCI unit (0 or 1)	
57	To load the LTCI unit, type >LOADPM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1) that you manually busied in step 56	
	If the LOADPM command	Do
	passes	step 59

PM LTCI critical, major, or minor (continued)

	If the LOADPM command	Do
	fails	step 58
58	Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.	
59	To return the manually-busy LTCI unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LTCI unit (0 or 1) that you manually busied in step 56	
	If the RTS command	Do
	passes, both LTCI units are InSV, and no other LT-CIs are SysB	step 162
	passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11
	passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 16
	passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb	step 97
	passes, and both LTCI units are ISTb	step 100
	fails	step 161
60	To manually busy the LTCI, type >BSY PM and press the Enter key.	
61	To load the LTCI, type >LOADPM PM and press the Enter key.	
	If the LOADPM command	Do
	passes	step 63
	fails	step 62

PM LTCI critical, major, or minor (continued)

62 Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

63 To return the LTCI to service, type
>RTS PM
 and press the Enter key.

If the RTS command	Do
passes, both LTCI units are InSv, and other LTCIs are not SysB	step 162
passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9	step 11
passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB	step 16
passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb	step 97
passes, and both LTCI units are ISTb	step 100
fails	step 161

64 To display all C-side busy LTCIs, type
>DISP STATE CBSY LTCI
 and press the Enter key.

Example of a MAP response:
 CBSy LTCI : 6,8

65 Record the number of each C-side busy LTCI.

66 Choose an LTCI on which to work.

67 To post the LTCI, type
>POST LTCI ltci_no
 and press the Enter key.

where

ltci_no
 is the number of the LTCI (0 to 255)

Example of a MAP response:

PM LTCI
critical, major, or minor (continued)

LTCI 6 CBsy Links_00S: CSide 32 , PSide 0
Unit0: Act CBsy
Unit1: Inact CBsy

If	Do
one LTCI unit is CBsy and the other LTCI unit is SysB or ManB	step 68
both LTCI units are CBsy	step 69

- 68 Work on the C-side busy unit first.
- 69 The fault is on the C-side of the LTCI.
To obtain the network plane and link numbers that the LTCI uses to communicate, type
>TRNSL C
and press the Enter key.
Example of a MAP response:
- ```
Link 0: ENET 0 0 32 00 0;Cap MS;Status:OK
Link 1: ENET 1 0 32 00 0;Cap MS;Status:OK

Link 30: ENET 0 0 32 00 15;Cap S;Status:OK
Link 31: ENET 1 0 32 00 15;Cap S;Status:OK
```
- Note:** Link 2 to link 29 do not appear in this example.
- 70 Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.
- 71 To post the LTCI that was C-side busy, type  
**>PM;POST LTCI ltci\_no**  
and press the Enter key.  
*where*  
      **ltci\_no**  
      is the number of the LTCI (0 to 255)  
*Example of a MAP response:*

## PM LTCI critical, major, or minor (continued)

```
LTCI 6 SysB Links_00S: CSide 0 , PSide 0
Unit0: Act InSv
Unit1: Inact SysB
```

| If                                                                     | Do       |
|------------------------------------------------------------------------|----------|
| both LTCI units are InSv, and other LTCIs are not CBsy                 | step 162 |
| one LTCI unit is InSv, while the other LTCI unit is SysB               | step 16  |
| both LTCI units are InSv, but you recorded other CBsy LTCIs in step 65 | step 67  |
| one LTCI unit is InSv, while the other LTCI unit is ManB               | step 76  |
| one or both LTCI units remain CBsy                                     | step 161 |

**72** To display all manually-busy LTCIs, type

**>DISP STATE MANB LTCI**

and press the Enter key.

*Example of a MAP response:*

ManB LTCI : 2,10

**73** Record the number of each manually-busy LTCI.

**74** Choose an LTCI on which to work.

**75** To post the LTCI, type

**>POST LTCI ltci\_no**

and press the Enter key.

where

**ltci\_no**

is the number of the LTCI (0 to 255)

*Example of a MAP response:*

```
LTCI 2 ManB Links_00S: CSide 0 , PSide 0
Unit0: Act ManB
Unit1: Inact ManB
```

**76** Determine from office records or operating company personnel why the unit is manual busy.

When you have permission, continue with this procedure.

## PM LTCI critical, major, or minor (continued)

77 To test the LTCI unit, type

**>TST UNIT unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the LTCI unit (0 or 1)

Example of a MAP response:

```
LTCI 2 Unit 0 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 2 Unit 1 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 2 Unit 0 Tst Passed
LTCI 2 Unit 1 Tst Passed
```

| If the TST command                                                                        | Do       |
|-------------------------------------------------------------------------------------------|----------|
| passes                                                                                    | step 80  |
| fails, and part of the response is check for possible logs                                | step 78  |
| fails, and part of the response is Try PMRESET                                            | step 79  |
| fails, and the system generated a card list                                               | step 81  |
| fails, and the system did not generate a card list                                        | step 86  |
| fails on one unit, and part of the MAP response is PM failed to initialize, try reloading | step 86  |
| other than listed here                                                                    | step 161 |

78 Obtain the log that the system generated for the LTCI.

| If the log                   | Do      |
|------------------------------|---------|
| provides a card list         | step 81 |
| does not provide a card list | step 86 |

79 To reset the LTCI unit, type

**>PMRESET UNIT unit\_no**

and press the Enter key.

where

## PM LTCI critical, major, or minor (continued)

**unit\_no**

is the number of the LTCI unit (0 or 1) that you tested in step 77

*Example of a MAP response:*

LTCI 2 Unit 1 PMReset Passed

|           | <b>If the PMRESET</b>                                                                                                                                                                                                        | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passes                                                                                                                                                                                                                       | step 80   |
|           | fails                                                                                                                                                                                                                        | step 86   |
| <b>80</b> | <p>To return the LTCI unit to service, type<br/> <b>&gt;RTS UNIT unit_no</b><br/> and press the Enter key.<br/> <i>where</i><br/> <b>unit_no</b><br/> is the number of the LTCI unit (0 or 1) that you tested in step 77</p> |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                    | <b>Do</b> |
|           | passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                                                                                                                                                 | step 16   |
|           | passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is ManB                                                                                                                                                 | step 76   |
|           | passes, both LTCI units are InSv, and other LTCIs are not ManB                                                                                                                                                               | step 162  |
|           | passes, and both LTCI units are InSv, but you recorded other ManB LTCIs in step 73                                                                                                                                           | step 75   |
|           | passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                         | step 97   |
|           | passes, and both LTCI units are ISTb                                                                                                                                                                                         | step 100  |
|           | fails, and the system generated a card list                                                                                                                                                                                  | step 81   |
|           | fails, and the system did not generate a card list                                                                                                                                                                           | step 86   |
|           | other than listed here                                                                                                                                                                                                       | step 161  |
| <b>81</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                                                                                      |           |
| <b>82</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                |           |

**PM LTCI****critical, major, or minor** (continued)

---

- 83** Determine if the card that you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).

---

| <b>If the card</b>               | <b>Do</b> |
|----------------------------------|-----------|
| was an NT6X45, NT6X46, or NT6X47 | step 85   |
| was other than listed here       | step 84   |

---

- 84** To set the LTCI unit, type  
**>PMRESET UNIT unit\_no**  
and press the Enter key.  
*where*  
    **unit\_no**  
        is the number of the LTCI unit (0 or 1) that you tested in step 77  
*Example of a MAP response:*  
LTCI 0 Unit 1 PMReset Passed

---

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passes                        | step 87   |
| other than listed here        | step 85   |

---

- 85** To load the LTCI unit, type  
**>LOADPM UNIT unit\_no**  
and press the Enter key.  
*where*  
    **unit\_no**  
        is the number of the LTCI unit (0 or 1) that you tested in step 77

---

| <b>If the LOADPM command</b> | <b>Do</b> |
|------------------------------|-----------|
| passes                       | step 87   |
| fails                        | step 86   |

---

- 86** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

- 87** To return the manually-busy LTCI unit to service, type  
**>RTS UNIT unit\_no**  
and press the Enter key.  
*where*



## PM LTCI critical, major, or minor (continued)

**unit\_no**  
is the number of the LTCI unit (0 or 1)

|           | <b>If the RTS command</b>                                                                                                                                                                         | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is ManB                                                                                                                      | step 76   |
|           | passes, both LTCI units are InSv, and other LTCIs are not ManB                                                                                                                                    | step 162  |
|           | passes, and both LTCI units are InSv, but you recorded other ManB LTCIs in step 73                                                                                                                | step 75   |
|           | passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                              | step 97   |
|           | passes, and both LTCI units are ISTb                                                                                                                                                              | step 100  |
|           | fails, and you did not replace all cards in the list that you recorded in step 81                                                                                                                 | step 88   |
|           | fails, and you replaced all cards in the list that you recorded in step 81                                                                                                                        | step 161  |
|           | other than listed here                                                                                                                                                                            | step 161  |
| <b>88</b> | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                      |           |
| <b>89</b> | Go to step 83.                                                                                                                                                                                    |           |
| <b>90</b> | To display all in-service trouble LTCIs, type<br><b>&gt;DISP STATE ISTB LTCI</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br>ISTb LTCI : 12                               |           |
| <b>91</b> | Record the number of each in-service trouble LTCI.                                                                                                                                                |           |
| <b>92</b> | Choose an LTCI on which to work.                                                                                                                                                                  |           |
| <b>93</b> | To post the LTCI, type<br><b>&gt;POST LTCI ltci_no</b><br>and press the Enter key.<br><i>where</i><br><b>ltci_no</b><br>is the number of the LTCI (0 to 255)<br><i>Example of a MAP response:</i> |           |

## PM LTCI critical, major, or minor (continued)

```
LTCI 12 ISTb Links_00S: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act ISTb
```

| If                                                               | Do       |
|------------------------------------------------------------------|----------|
| one LTCI unit is SysB and the other LTCI unit is ISTb or InSv    | step 94  |
| one LTCI unit is ManB and the other LTCI unit is ISTb or InSv    | step 95  |
| one LTCI unit is ISTb or InSv, while the other LTCI unit is CBsy | step 96  |
| one LTCI unit is ISTb and the other LTCI unit is InSv            | step 97  |
| both LTCI units are ISTb                                         | step 100 |
| both LTCI units are InSv                                         | step 101 |

- 94** Go to step 16 to work on the system busy unit first.
- 95** Go to step 76 to work on the manually-busy unit first.
- 96** Perform the procedure *Clearing a PM IPML major or minor alarm* in this document. Complete the procedure and return to this point.
- 97** Determine if the posted LTCI unit is active or inactive.  
**Note:** The activity status of the unit appears on the right side of the LTCI unit number in the MAP display in step 93.

| If the unit | Do       |
|-------------|----------|
| is inactive | step 100 |
| is active   | step 98  |

**98**



### CAUTION

#### Possible loss of service

Perform this activity during a period of low traffic. If you perform this activity during periods of high traffic the system drops all calls and data calls that this PM handles.

---

## PM LTCI critical, major, or minor (continued)

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To switch the activity of the units, type

**>SWACT**

and press the Enter key.

*Example of a MAP response:*

A Warm SWACT will be performed after data sync of active terminals Please confirm ("YES", "Y", "NO", or "N"):

**99** To confirm the prompt to switch the activity of the units, type

**>YES**

and press the Enter key.

**Note:** A maintenance flag (Mtce) appears when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action.

**100** Work on the inactive in-service trouble unit.

**101** To determine the cause of the in-service trouble condition, type

**>QUERYPM FLT**

and press the Enter key.

**Note:** One unit can have more than one in-service trouble condition at a given time. The unit remains in-service trouble until all in-service trouble conditions clear on the unit.

| If the response                                  | Do       |
|--------------------------------------------------|----------|
| is PM Overloaded                                 | step 161 |
| is Dynamic data sync in progress                 | step 102 |
| is Superframe sync in progress                   | step 102 |
| is CMR Load not present                          | step 103 |
| is CMR Load mismatch with Inventory table        | step 105 |
| is PM Load mismatch with Inventory table         | step 109 |
| is Load File mismatch with Inventory table       | step 109 |
| is Static data mismatch with CC                  | step 111 |
| is Sync trouble                                  | step 111 |
| is CLASS Modem Resource Card 6X78 out of service | step 116 |

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## PM LTCI critical, major, or minor (continued)

|     | If the response                                                                                                                                                                                                                                                                                                                                                    | Do       |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|     | is P-side links out of service                                                                                                                                                                                                                                                                                                                                     | step 123 |
|     | is Major alarm raised due to P-side link failure                                                                                                                                                                                                                                                                                                                   | step 123 |
|     | is C-side links out of service                                                                                                                                                                                                                                                                                                                                     | step 157 |
|     | is other than listed here                                                                                                                                                                                                                                                                                                                                          | step 161 |
| 102 | After a dynamic data or superframe synchronization process, the system automatically returns the LTCI unit to service. If other in-service trouble conditions are not present, the system returns the unit to service.<br><b>Note:</b> The system requires 5 min to change the status of the LTCI unit after a dynamic data or superframe synchronization process. |          |
|     | If after 5 min                                                                                                                                                                                                                                                                                                                                                     | Do       |
|     | the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                                                                                                                                                                           | step 97  |
|     | both LTCI units are InSv, and other LTCIs are not ISTb                                                                                                                                                                                                                                                                                                             | step 162 |
|     | both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91                                                                                                                                                                                                                                                                                             | step 93  |
|     | the LTCI unit remains ISTb                                                                                                                                                                                                                                                                                                                                         | step 101 |
| 103 | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                                                                                                                                                                                                       |          |
| 104 | Go to step 110.                                                                                                                                                                                                                                                                                                                                                    |          |
| 105 |                                                                                                                                                                                                                                                                                                                                                                    |          |



### CAUTION

#### Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the LTCI unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.

---

## PM LTCI critical, major, or minor (continued)

---

where

**unit\_no**  
is the number of the LTCI unit (0 or 1)

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 106 |
| fails              | step 161 |

- 106** To manually busy the CMR card, type

**>BSY UNIT unit\_no CMR**

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1) that contains the CMR card

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 107 |
| fails              | step 161 |

- 107** Perform the procedure *Correcting a load mismatch* in this document. Complete the procedure and return to this point.

- 108** To return the CMR card to service, type

**>RTS UNIT unit\_no CMR**

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1) that contains the CMR card

| If the RTS command                                                                 | Do       |
|------------------------------------------------------------------------------------|----------|
| passes, both LTCI units are InSv, and other ISTb LTCIs are not ISTb                | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97  |
| passes, but the LTCI unit remains ISTb                                             | step 101 |

---

## PM LTCI critical, major, or minor (continued)

|            | If the RTS command                                                                                                                                                                                                                                     | Do       |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|            | fails, and you did not replace the CMR card (NT6X78)                                                                                                                                                                                                   | step 119 |
|            | fails, and you replaced the CMR card (NT6X78)                                                                                                                                                                                                          | step 161 |
| <b>109</b> | Perform the procedure <i>Correcting a load mismatch</i> in this document. Complete the procedure and return to this point.                                                                                                                             |          |
| <b>110</b> | From the MAP of the posted LTCI, determine the status of the LTCI units.<br><b>Note:</b> A maintenance flag (Mtce) appears when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action. |          |
|            | If                                                                                                                                                                                                                                                     | Do       |
|            | both LTCI units are InSv, and no other LTCIs are ISTb                                                                                                                                                                                                  | step 162 |
|            | both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91                                                                                                                                                                                 | step 93  |
|            | one LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                                                               | step 97  |
|            | the LTCI unit remains ISTb                                                                                                                                                                                                                             | step 101 |

**111**



### CAUTION

#### Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive in-service trouble LTCI unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

where

---

## PM LTCI critical, major, or minor (continued)

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| <b>unit_no</b><br>is the number of the LTCI unit (0 or 1)                                                                                                                                   |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| If the BSY command                                                                                                                                                                          | Do       |
| passes                                                                                                                                                                                      | step 112 |
| fails                                                                                                                                                                                       | step 161 |
| <b>112</b> To return the LTCI unit to service, type<br><b>&gt;RTS UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) |          |
| If the RTS command                                                                                                                                                                          | Do       |
| passes, both LTCI units are InSv, and other LTCIs are not ISTb                                                                                                                              | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91                                                                                                          | step 93  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                        | step 97  |
| passes, but the LTCI unit remains ISTb                                                                                                                                                      | step 101 |
| fails                                                                                                                                                                                       | step 113 |
| <b>113</b> To load the LTCI unit, type<br><b>&gt;LOADPM UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1)           |          |
| If the LOADPM command                                                                                                                                                                       | Do       |
| passes                                                                                                                                                                                      | step 115 |
| fails                                                                                                                                                                                       | step 114 |
| <b>114</b> Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                     |          |

## PM LTCI

### critical, major, or minor (continued)

**115** To return the LTCI unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

| If the RTS command                                                                 | Do       |
|------------------------------------------------------------------------------------|----------|
| passes, both LTCI units are InSv, and other LTCIs are not ISTb                     | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97  |
| passes, but the LTCI unit remains ISTb                                             | step 101 |
| fails                                                                              | step 161 |

**116**



#### CAUTION

##### Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the LTCI unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 117 |
| fails              | step 161 |



## PM LTCl critical, major, or minor (continued)

- 117** To manually busy the CMR card, type  
**>BSY UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LTCl unit (0 or 1) that contains the CMR card
- 118** To test the CMR card, type  
**>TST UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LTCl unit (0 or 1) that contains the CMR card
- | If the TST command | Do       |
|--------------------|----------|
| passes             | step 122 |
| fails              | step 119 |
- 119** To replace the CMR card (NT6X78), perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 120** To load the CMR card, type  
**>LOADPM UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LTCl unit (0 or 1) that contains the CMR card
- | If the LOADPM command | Do       |
|-----------------------|----------|
| passes                | step 122 |
| fails                 | step 121 |
- 121** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.
- 122** To return the CMR card to service, type  
**>RTS UNIT unit\_no CMR**  
 and press the Enter key.  
*where*

**PM LTCI****critical, major, or minor** (continued)**unit\_no**

is the number of the LTCI unit (0 or 1) that contains the CMR card

|            |                                                                                                                                                                                                                                                                                                                                                                                                          | <b>If the RTS command</b>                                                          | <b>Do</b> |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------|
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | passes, both LTCI units are InSv, and other LTCIs are not ISTb                     | step 162  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93   |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97   |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | passes, but the LTCI unit remains ISTb                                             | step 101  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | fails, and you did not replace the CMR card (NT6X78)                               | step 119  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | fails, and you replaced the CMR card (NT6X78)                                      | step 161  |
| <b>123</b> | To identify the out-of-service P-side links, type<br><b>&gt;TRNSL P</b><br>and press the Enter key.<br><i>Example of a MAP response:</i> <pre> Link 0: Carrier of Class - Timing;Status:Offl Link 1: Carrier of Class - Trunk ;Status:OK  Link 18: Carrier of Class - Trunk ;Status:OK Link 19: Carrier of Class - Trunk ;Status:OK </pre> <b>Note:</b> Link 2 to link 17 do not appear in this example. |                                                                                    |           |
| <b>124</b> | Record the number and state of each out-of-service P-side link.<br><b>Note:</b> P-side links with a status of OK are in service. Any other status indicates an out-of-service P-side link. All P-side links are links, unless identified in the MAP display as a CARRIER.                                                                                                                                |                                                                                    |           |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | <b>If the out-of-service links</b>                                                 | <b>Do</b> |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | are DCH                                                                            | step 125  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | are carriers                                                                       | step 130  |
|            |                                                                                                                                                                                                                                                                                                                                                                                                          | are links                                                                          | step 132  |
| <b>125</b> | To access the DCH level of the MAP display, type<br><b>&gt;DCH</b>                                                                                                                                                                                                                                                                                                                                       |                                                                                    |           |

## PM LTCI critical, major, or minor (continued)

and press the Enter key.

- 126** Perform the procedure *Clearing a PM DCH major or minor alarm* in this document. Complete the procedure and return to this point.

- 127** Determine the status of the LTCI.

| If the LTCI                                           | Do       |
|-------------------------------------------------------|----------|
| is InSv, and other LTCIs are not ISTb                 | step 162 |
| is InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| remains ISTb                                          | step 128 |

- 128** To exit the DCH level of the MAP display, type

**>QUIT**

and press the Enter key.

- 129** To determine the status of the P-side links, type

**>TRNSL P**

and press the Enter key.

| If the links       | Do       |
|--------------------|----------|
| are out of service | step 124 |
| are in service     | step 101 |

- 130** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

- 131** To post the LTCI that had out-of-service P-side links, type

**>PM;POST LTCI ltci\_no**

and press the Enter key.

where

**ltci\_no**

is the number of the LTCI (0 to 255)

| If the LTCI                                           | Do       |
|-------------------------------------------------------|----------|
| is InSv, and other LTCIs are not ISTb                 | step 162 |
| is InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |

**PM LTCI****critical, major, or minor** (continued)

|            | <b>If the LTCI</b>                                                                                                                                         | <b>Do</b> |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | remains ISTb                                                                                                                                               | step 129  |
| <b>132</b> | Determine if more than one link is out of service.                                                                                                         |           |
| <b>133</b> | Choose a link on which to work.                                                                                                                            |           |
|            | <b>If the link</b>                                                                                                                                         | <b>Do</b> |
|            | is SysB                                                                                                                                                    | step 134  |
|            | is ManB                                                                                                                                                    | step 135  |
| <b>134</b> | To busy the link, type<br><b>&gt;BSY LINK link_no</b><br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
| <b>135</b> | To test the link, type<br><b>&gt;TST LINK link_no</b><br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
|            | <b>If the TST command</b>                                                                                                                                  | <b>Do</b> |
|            | passes                                                                                                                                                     | step 136  |
|            | fails, and the system generated a card list                                                                                                                | step 137  |
|            | fails and the system did not generate a card list                                                                                                          | step 142  |
|            | other than listed here                                                                                                                                     | step 161  |
| <b>136</b> | To return the link to service, type<br><b>&gt;RTS LINK link_no</b><br>and press the Enter key.<br><i>where</i>                                             |           |

## PM LTCI critical, major, or minor (continued)

**link\_no**  
is the number of the link (0 to 63)

|            | <b>If the RTS command</b>                                                                                                                                               | <b>Do</b> |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | passes, the LTCI unit is InSv, and other LTCIs are not ISTb                                                                                                             | step 162  |
|            | passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91                                                                                         | step 93   |
|            | passes, but other out-of-service links are present                                                                                                                      | step 132  |
|            | fails, and the system generated a card list                                                                                                                             | step 137  |
|            | fails, and the system did not generate a card list                                                                                                                      | step 142  |
| <b>137</b> | Record the location, description, number, product engineering code (PEC), and PEC suffix of the cards on the list.                                                      |           |
| <b>138</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.           |           |
| <b>139</b> | To return the link to service, type<br><b>&gt;RTS LINK link_no</b><br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
|            | <b>If the RTS command</b>                                                                                                                                               | <b>Do</b> |
|            | passes, the LTCI unit is InSv, and other LTCIs are not ISTb                                                                                                             | step 162  |
|            | passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91                                                                                         | step 93   |
|            | passes, but other out-of-service links are present                                                                                                                      | step 132  |
|            | fails, and you did not replace all cards in the list that you recorded in step 137                                                                                      | step 140  |
|            | fails, and you replaced all cards in the list that you recorded in step 137                                                                                             | step 161  |
| <b>140</b> | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.            |           |
| <b>141</b> | Go to step 139.                                                                                                                                                         |           |

**PM LTCI**  
**critical, major, or minor** (continued)

142



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive LTCI unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1)

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 143 |
| fails              | step 161 |

**143** To test the LTCI unit, type

**>TST UNIT unit\_no**

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1)

| If the TST command                                         | Do       |
|------------------------------------------------------------|----------|
| passes                                                     | step 151 |
| fails, and the system generated a card list                | step 145 |
| fails, and part of the response is check for possible logs | step 144 |
| fails, and the system did not generate a card list         | step 149 |

## PM LTCI critical, major, or minor (continued)

|            | <b>If the TST command</b>                                                                                                                                                                                                                       | <b>Do</b> |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | other than listed here                                                                                                                                                                                                                          | step 161  |
| <b>144</b> | Obtain the log that the system generated for the LTCI.                                                                                                                                                                                          |           |
|            | <b>If the log</b>                                                                                                                                                                                                                               | <b>Do</b> |
|            | provides a card list                                                                                                                                                                                                                            | step 145  |
|            | does not provide a card list                                                                                                                                                                                                                    | step 149  |
| <b>145</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                                                                                                         |           |
| <b>146</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                   |           |
| <b>147</b> | Determine if the card you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).                                                                                                                      |           |
|            | <b>If the card</b>                                                                                                                                                                                                                              | <b>Do</b> |
|            | was an NT6X45, NT6X46, or NT6X47                                                                                                                                                                                                                | step 149  |
|            | was other than listed here                                                                                                                                                                                                                      | step 148  |
| <b>148</b> | To reset the LTCI unit, type<br><b>&gt;PMRESET UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1)<br><i>Example of a MAP response:</i><br>LTCI 0 Unit 1   PMReset Passed |           |
|            | <b>If the PMRESET command</b>                                                                                                                                                                                                                   | <b>Do</b> |
|            | passes                                                                                                                                                                                                                                          | step 151  |
|            | other than listed here                                                                                                                                                                                                                          | step 149  |
| <b>149</b> | To load the LTCI unit, type<br><b>&gt;LOADPM UNIT unit_no</b><br>and press the Enter key.<br><i>where</i>                                                                                                                                       |           |

## PM LTCI critical, major, or minor (continued)

| <b>unit_no</b><br>is the number of the LTCI unit (0 or 1)                          |                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If the LOADPM command                                                              | Do                                                                                                                                                                               |
| passes                                                                             | step 151                                                                                                                                                                         |
| fails                                                                              | step 150                                                                                                                                                                         |
| <b>150</b>                                                                         | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                     |
| <b>151</b>                                                                         | To return the LTCI unit to service, type<br><b>&gt;RTS UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) |
| If the RTS command                                                                 | Do                                                                                                                                                                               |
| passes, but ManB links are present                                                 | step 154                                                                                                                                                                         |
| passes, but out-of-service links continue to be present                            | step 161                                                                                                                                                                         |
| fails, and you did not replace all cards in the list that you recorded in step 145 | step 152                                                                                                                                                                         |
| fails, and you replaced all cards in the list that you recorded in step 145        | step 161                                                                                                                                                                         |
| <b>152</b>                                                                         | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                     |
| <b>153</b>                                                                         | Go to step 147.                                                                                                                                                                  |
| <b>154</b>                                                                         | Determine if more than one link is manually busy.                                                                                                                                |
| <b>155</b>                                                                         | Choose a link on which to work.                                                                                                                                                  |
| <b>156</b>                                                                         | To return the link to service, type<br><b>&gt;RTS LINK link_no</b><br>and press the Enter key.<br><i>where</i>                                                                   |



## PM LTCI critical, major, or minor (continued)

**link\_no**  
is the number of the link (0 to 63)

|            | <b>If the RTS command</b>                                                                                                                                                                                                                                                                                                                                                                                          | <b>Do</b> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | passes, the LTCI unit is InSv, and other LTCIs are not ISTb                                                                                                                                                                                                                                                                                                                                                        | step 162  |
|            | passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91                                                                                                                                                                                                                                                                                                                                    | step 93   |
|            | passes, but more ManB links are present                                                                                                                                                                                                                                                                                                                                                                            | step 154  |
|            | passes, and more out-of-service links are not present, but the LTCI remains ISTb                                                                                                                                                                                                                                                                                                                                   | step 97   |
|            | fails                                                                                                                                                                                                                                                                                                                                                                                                              | step 161  |
| <b>157</b> | To identify the out-of-service C-side links, type<br><b>&gt;TRNSL C</b><br>and press the Enter key.<br><i>Example of a MAP response:</i> <pre> Link  0: ENET 0  0 32 00  0;Cap MS;Status:OK Link  1: ENET 1  0 32 00  0;Cap MS;Status:OK  Link 30: ENET 0  0 32 00 15;Cap  S;Status:OK Link 31: ENET 1  0 32 00 15;Cap  S;Status:OK           </pre> <b>Note:</b> Link 2 to link 29 do not appear in this example. |           |
| <b>158</b> | Record the network, plane, and link number of the links that do not have a status of OK.                                                                                                                                                                                                                                                                                                                           |           |
| <b>159</b> | Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.                                                                                                                                                                                                                                                                                                    |           |
| <b>160</b> | To post the LTCI that had the original out-of-service C-side links, type<br><b>&gt;PM;POST LTCI ltci_no</b><br>and press the Enter key.<br><i>where</i><br><b>ltci_no</b><br>is the number of the LTCI (0 to 255)                                                                                                                                                                                                  |           |
|            | <b>If the LTCI</b>                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Do</b> |
|            | is InSv, and other LTCIs are not ISTb                                                                                                                                                                                                                                                                                                                                                                              | step 162  |

## PM LTCI

### critical, major, or minor (end)

---

|            | If the LTCI                                              | Do       |
|------------|----------------------------------------------------------|----------|
|            | is InSv, but you recorded other<br>ISTb LTCIs in step 91 | step 93  |
|            | remains ISTb                                             | step 101 |
| <b>161</b> | For additional help, contact the next level of support.  |          |
| <b>162</b> | The procedure is complete.                               |          |

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## Ext CPPOOL

## critical

- clearing Vol. 1, 4-42

## major

- clearing Vol. 1, 4-47

## Ext Crit

## critical

- clearing Vol. 1, 4-3

## EXT E911\_ALI\_MAJOR

## Major

- clearing Vol. 1, 4-57

## EXT E911\_ALI\_MINOR

## Minor

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## EXT E911\_PSAP\_OFFHK

## minor

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## EXT E911\_RCER

## minor alarm

- clearing Vol. 1, 4-105

## EXT E911\_RCER\_MAJOR

## Major

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## EXT E911\_SRDB\_MEMORY

## Minor

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## Ext FSP

## APC cabinet major

- clearing Vol. 1, 4-128

## CCC frame major

- clearing Vol. 1, 4-137

## CDSN cabinet major

- clearing Vol. 1, 4-201

## CDSN cabinet with MSP shelf major

- clearing Vol. 1, 4-146

## CIOE cabinet major

- clearing Vol. 1, 4-219

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  - CIPE cabinet with MSP shelf major
    - clearing Vol. 1, 4-160
  - CISM, CMTA and CTME cabinet with an MSP shelf major
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  - CPDC cabinet major
    - clearing Vol. 1, 4-174
  - DCE frame major
    - clearing Vol. 1, 4-182
  - DPCC cabinet major
    - clearing Vol. 1, 4-191
  - DSNE frame major
    - clearing Vol. 1, 4-201
  - DTE frame major
    - clearing Vol. 1, 4-210
  - IDTE frame major
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    - clearing Vol. 1, 4-219
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    - clearing Vol. 1, 4-242
  - major
    - clearing Vol. 1, 4-125
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    - clearing Vol. 1, 4-250
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    - clearing Vol. 1, 4-265
  - NET0, NET1 (circuit breakers and fuses) major
    - clearing Vol. 1, 4-274
  - NET0, NET1 frame (fuses only) major
    - clearing Vol. 1, 4-283
  - NETC frame major
    - clearing Vol. 1, 4-292
  - PDC frame major
    - clearing Vol. 1, 4-301
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    - major
      - clearing Vol. 1, 4-12
  - Ext Min
    - minor
      - clearing Vol. 1, 4-34
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- Failure to switch clock mastership Vol. 4, 4-122
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- IOD DDUOS on an IOM
    - major or minor
      - clearing Vol. 2, 1-178
  - IOD DEVBnn
    - critical, major, or minor
      - clearing Vol. 2, 1-76
  - IOD DMNTnn
    - minor
      - clearing Vol. 2, 1-79
  - IOD HOLDnn
    - minor
      - clearing Vol. 2, 1-85
  - IOD ITOC
    - critical
      - clearing Vol. 2, 1-88
    - minor
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  - IOD KEEPn
    - minor
      - clearing Vol. 2, 1-103
  - IOD MPCLNK
    - minor
      - clearing Vol. 2, 1-106
  - IOD MTDOS in an IOC
    - minor
      - clearing Vol. 2, 1-235
  - IOD nCKEr
    - minor
      - clearing Vol. 2, 1-126
  - IOD nCKOS
    - major or minor
      - clearing Vol. 2, 1-142
  - IOD nDDUOS
    - major or minor
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    - minor
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    - major or minor
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  - IOD nMPCOS
    - major or minor
      - clearing Vol. 2, 1-211
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    - major or minor
      - clearing Vol. 2, 1-222
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IOD nnAMA  
    critical, major, or minor  
        clearing Vol. 2, 1-260

IOD nnJF  
    critical, major, or minor  
        clearing Vol. 2, 1-264

IOD nnOM  
    critical, major, or minor  
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IOD NO AMA on device type DISK  
    critical  
        clearing Vol. 2, 1-272

IOD NO AMA on device type TAPE  
    critical  
        clearing Vol. 2, 1-281

IOD NO ssys on device type DISK  
    critical, major, or minor  
        clearing Vol. 2, 1-295

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    critical  
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        clearing Vol. 2, 1-333

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        clearing Vol. 2, 1-349  
    minor  
        clearing Vol. 2, 1-355

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    minor  
        clearing Vol. 2, 1-361

IOD SLMtbl  
    minor  
        clearing Vol. 2, 1-367

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IOD ssys E  
    minor  
        clearing Vol. 2, 1-377

IOD ssys F  
    minor  
        clearing Vol. 2, 1-381

IOD ssys l  
    minor  
        clearing Vol. 2, 1-384

IOD ssys MP  
    critical  
        clearing Vol. 2, 1-389

IOD ssys P  
    critical  
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        clearing Vol. 2, 2-3

Lns DIAG  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-7

Lns FAC  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-11

Lns HZD  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-15

Lns IMAJ  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-19

Lns IMIN  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-23

Lns LCARD  
    in a remote oscillator shelf  
        clearing Vol. 2, 2-27

Lns LSET  
in a remote oscillator shelf  
clearing Vol. 2, 2-31

Lns MCARD  
in a remote oscillator shelf  
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Lns MSET  
in a remote oscillator shelf  
clearing Vol. 2, 2-39

Lns NDIAG  
in a remote oscillator shelf  
clearing Vol. 2, 2-43

Lns OMAJ  
critical, major, or minor  
clearing Vol. 2, 2-47

Lns OMIN  
critical, major, or minor  
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Lns PSPD  
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Lns SDIAG  
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Lns TCM  
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DMS-100 Family

## **North American DMS-100**

Alarm Clearing and Performance Monitoring Procedures

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